



Environmental Management System Programs Manual



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Office of Legacy Management

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Environmental Management System Programs Manual


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Environmental Management System Programs Manual Revision History

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Acronyms and Abbreviations

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ccf	thousand cubic feet
CFR	<i>Code of Federal Regulations</i>
DOE	U.S. Department of Energy
E2G2	Energy Efficiency and Greenhouse Gases Program
EC	Environmental Compliance
EI	energy-use intensity
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPACT	Energy Policy Act of 2005
EPEAT	Electronic Product Environmental Assessment Tool
EPP	Environmentally Preferable Purchasing
FAST	Federal Automotive Statistical Tool
FEC	Federal Electronics Challenge
FIMS	Facilities Information Management System
FY	fiscal year
GSA	General Services Administration
HQ	Headquarters
IESNA	Illuminating Engineering Society of North America
LEED	Leadership for Environmental and Energy Design
LM	Office of Legacy Management
LMS	Legacy Management Support (contract and contractor)
LTS&M	long-term surveillance and maintenance
NEBA	Net Environmental Benefit Analysis
PPOA	pollution prevention opportunity assessment
RCRA	Resource Conservation and Recovery Act
TEAM	Transformational Energy Action Management
U.S.C.	United States Code
USGBC	U.S. Green Building Council
WCP	Water Conservation Program
WMP2	Waste Minimization and Pollution Prevention Program
WUI	water-use-intensity

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Executive Summary

Introduction

This manual is a coordinated effort by S.M. Stoller Corporation, Legacy Management Support contractor (contractor) and the U.S. Department of Energy Office of Legacy Management (DOE-LM) to implement the Environmental Management System (EMS) sustainability programs. These programs are part of the overarching DOE-LM EMS, which is a systematic process for improving the environmental impacts that result from DOE-LM work activities, products, and services. The EMS programs enable DOE-LM and its contractors to implement sustainable environmental stewardship practices that enhance the quality of the air, water, land, and other natural resources adversely affected by DOE-LM operations.

In addition to this manual, the DOE-LM EMS is implemented through two other documents: the *Environmental Management System Description* (LMS/POL/S04346) and the *Environmental Protection Manual* (LMS/POL/S04329).

The EMS Description defines the scope, mechanics, and applicability of the EMS and is developed in accordance with DOE Guide 450.1-2, *Implementation Guide for Integrating Environmental Management Systems into Integrated Safety Management Systems*. The EMS Description also describes processes for developing aspects, targets, and goals; evaluating continuous improvements; and integrating lessons learned.

The *Environmental Protection Manual* consists of environmental compliance and monitoring programs that implement federal, state, tribal, and local regulatory requirements, agreements, and permitted activities. The *Environmental Protection Manual* also describes how these programs support and integrate projects and functional organizations' areas of responsibility under the EMS into the DOE-LM mission.

Purpose of the EMS Programs Manual

This manual provides plans to implement each of the nine EMS programs. The program plans adhere to the core "Plan-Do-Check-Act" principles defined in the EMS Description and the *Integrated Safety Management System Description with Embedded Worker Safety and Health Program* (LMS/POL/S04328) by emphasizing the necessity of integrating environmental sustainability and stewardship into the planning phases of work, and by providing specific plans and procedures that take into account the environment. The EMS programs align with the DOE-LM mission in that actions prescribed for each program are periodically subject to evaluation and corrective action to enable continuous improvement.

This manual provides direction to mitigate environmental impacts and establishes programs to meet, lead, and exceed in sustainability through energy efficiency, use of environmentally friendly products, conservation of natural resources, and source reduction and waste minimization of hazardous and toxic materials. This manual also describes roles and responsibilities for DOE-LM, contractor senior management, project management, line managers, and workers.

Scope

This manual applies to all work conducted by DOE-LM, the contractor, and contractor teaming partners. Subcontractors who perform DOE-LM work must also comply with the EMS programs as directed by the contractor.

The EMS programs are conducted in accordance with DOE Order 450.1, *Environmental Protection Program*; DOE 430.2B, *Departmental Energy, Renewable Energy and Transportation Management*; Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; the *Transformational Energy Action Management (TEAM) Initiative* (DOE 2007b); and DOE-LM Policy 450.1, *Environmental, Safety, and Health Policy*.

This manual consists of nine chapters that describe the environmental programs and requirements.

- Chapter 1.0 Energy Efficiency and Greenhouse Gases—EMS Program #1
- Chapter 2.0 Renewable Energy—EMS Program #2
- Chapter 3.0 Water Conservation—EMS Program #3
- Chapter 4.0 Environmentally Preferable Purchasing—EMS Program #4
- Chapter 5.0 Waste Minimization and Pollution Prevention—EMS Program #5
- Chapter 6.0 Sustainable Buildings—EMS Program #6
- Chapter 7.0 Vehicle and Fuel Use—EMS Program #7
- Chapter 8.0 Electronic Stewardship Program—EMS Program #8
- Chapter 9.0 Land Stewardship—EMS Program #9

Responsibilities

Management and Employees

DOE-LM and contractor management, their employees, and subcontractors are responsible for conducting all activities in compliance with federal, state, tribal, and local environmental laws, regulations, executive orders, and DOE orders. Compliance with environmental laws and regulations is essential to project and program success and will not be compromised. Furthermore, proper compliance minimizes risks and liabilities to DOE-LM and its contractors.

Consistent with this commitment to environmental protection, all workers have the right, responsibility, and authority to report environmentally unsound conditions or practices to DOE-LM or contractor management and to stop work without fear of reprisal.

Contractor management is also responsible for supporting the following environmental goals:

- Integrating environmental management sustainability principles and regulatory requirements into all aspects of project planning and execution, in a consistent, efficient, cost-effective manner.

- Providing and maintaining a well-trained staff of professionals with diverse environmental compliance and regulatory experience to comply with environmental laws, regulations, and guidance.
- Reporting and responding to actual or potential violations and taking corrective action in a timely manner.
- Involving the public in compliance actions when appropriate and deemed necessary.
- Facilitating communication with stakeholders (internal and external), regulators, and the community to promote EMS partnerships and ensure compliance with environmental laws and regulations.
- Implementing a system of environmental oversight, including assessments and surveillances, to evaluate the effectiveness of, and compliance with, environmental policies and programs.

Environmental Compliance

The Environmental Compliance organization is a cross-functional support group with the mission of providing compliance support oversight across all programs and projects.

Environmental Compliance is responsible for coordinating the implementation of DOE Orders 450.1 and 430.2B. These orders go beyond environmental compliance to implement EO 13423 and the Secretary of Energy's TEAM Initiative (DOE 2007b). The EMS Core Team and individual program teams were established to facilitate implementation of these orders, and senior management and DOE-LM fully support time and budget for this effort.

EMS Core Team

The Core Team is responsible for overseeing the EMS Program teams and functions as the steering committee for management-level decisions. It is composed of a DOE-LM sponsor and a contractor senior management sponsor, an EMS coordinator, and 10 to 20 representatives from various levels of management and project support.

EMS Program Teams

Program teams consist of a team lead and two to four members who are responsible for developing the program to which they are assigned. Each program team must develop a program consisting of a mission statement and scope, which align with environmental protection and DOE orders; a program implementation plan, which includes a process to measure performance; a media campaign; necessary training to communicate the needs and goals of the program and integrate it into daily activities; and a reporting process.

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1.0 Energy Efficiency and Greenhouse Gases—EMS Program #1

The U.S. Department of Energy Office of Legacy Management (DOE-LM) and contractor Energy Efficiency and Greenhouse Gases (E2G2) Program strives to maximize energy efficiency in the total energy consumed and decrease the generation of greenhouse gases in conducting the DOE-LM mission.

1.1 Purpose

This E2G2 Program plan establishes a systematic approach for improving energy efficiency and decreasing greenhouse gas generation at DOE-LM sites in compliance with Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, DOE Order 450.1, *Environmental Protection Program*, and DOE Order 430.2B, *Departmental Energy, Renewable Energy and Transportation Management*.

This plan adheres to the Integrated Safety Management System concept of promoting continuous improvement through the “Plan-Do-Check-Act” approach and encompasses applicable *Quality Assurance Manual* (LMS/POL/S04320) and *Health and Safety Manual* (LMS/POL/S04321) components and requirements by reference.

1.2 Scope

The program strives to improve energy efficiency and reduce greenhouse gas emissions through a measurable reduction of energy intensity. The EO 13423 goals for E2G2 require DOE-LM to reduce energy intensity and greenhouse gases by 3 percent annually through the end of fiscal year (FY) 2015 or 30 percent by the end of the FY 2015, relative to the baseline energy use in FY 2003.

The E2G2 Program addresses the energy-efficient evaluation, tracking, maintenance, and operation of DOE-LM buildings and facilities in a resource-efficient, sustainable, and economically viable manner. Energy efficiency evaluations and initiatives are implemented on the basis of cost effectiveness and feasibility.

Both electricity and natural gas energy sources are included in this E2G2 Program. The E2G2 Program applies at all existing and newly transitioned DOE-LM sites that have energy users.

1.3 Responsibilities

DOE-LM and contractor senior management are responsible for approval of contractor E2G2 performance goals and objectives, review of proposals for E2G2 initiatives and plans to meet the program goals and objectives, and approval of and concurrence in proposals and expenditures in accordance with contractor procedures. Contractor senior management is also responsible for ensuring that approved, budgeted resources are available and that programmatic and technical direction is promulgated in a timely manner to implement the E2G2 Program.

Project managers are responsible for including consideration of energy efficiency practices in carrying out assigned work. This includes responsibility for performing energy efficiency feasibility evaluations in accordance with this program. In addition, project managers are

responsible for ensuring that staff and equipment are assigned in a timely manner to comply with contractor senior management programmatic and technical direction and budget to implement the energy efficiency improvements. This includes responsibility for gathering information about energy uses and greenhouse gas production for activities under their purview for use in the program metrics. They must also identify information about newly transitioned DOE-LM sites for the E2G2 team lead.

E2G2 Program team members are responsible for developing knowledge, skills, and abilities to provide programmatic and technical information necessary to achieve this program's scope. Periodically, they must also recommend program goals and initiatives, as appropriate. In addition, they are responsible for promoting and championing the program, for helping all employees become aware of the program, for obtaining necessary training, and for facilitating program implementation.

The EMS Core Team, program team, or both propose site-specific or programmatic goals that are developed in accordance with the *Environmental Management System Description* (LMS/POL/S04346), aligned with the applicable orders and guidance, and approved by contractor senior management and DOE-LM.

Staff members are responsible for performing tasks within the scope of duties assigned by site leads and line managers, at a level commensurate with their expertise, and in accordance with their authority to implement the E2G2 Program. Staff members are also responsible for completing E2G2 Program awareness-level training in a timely manner.

1.4 Procedure

Obtain current and historical energy usage at each metered DOE-LM site.

Arrange separate metering or estimate usage at co-located sites.

Establish energy intensity baselines for DOE-LM sites, as described in Section 1.5.

Calculate energy intensity and energy efficiency, as described in Section 1.5.

Evaluate and select a method to estimate greenhouse gas generation.

Develop and implement a system to monitor and evaluate program progress.

Annually catalogue and describe the status of existing DOE-LM E2G2 reduction projects.

Prioritize target sites on the basis of completed DOE-LM energy baselines.

Propose annual E2G2 goals, initiatives, and metrics, as appropriate. Approved EMS E2G2 Program goals, initiatives, and metrics are posted on the EMS website.

1.5 Program Metrics

1.5.1 Baseline Establishment

The DOE-LM energy baseline uses the cumulative total FY 2003 energy use and building size data from all applicable DOE-LM sites. For electricity, baseline is defined as kilowatt-hours used per building gross square footage during the baseline period. For natural gas, baseline is defined as thousand cubic feet (ccf) used per building gross square footage during the baseline period. A baseline energy-use intensity (EI) number is calculated for each energy source type by dividing the cumulative annual amount of energy used (kilowatt-hours or ccf) in FY 2003 from all applicable DOE-LM sites by the cumulative total building gross square footage from all applicable sites.

This is represented as:

$$B_{(E \text{ or } NG)} = EI_{(B-E \text{ or } NG)} = \frac{TU_{(B)}}{SF_{(B)}}$$

where: $B_{(E \text{ or } NG)}$ = DOE-LM energy-use baseline (in FY 2003) for either electricity or natural gas,
 $EI_{(B-E \text{ or } NG)}$ = Energy-Use Intensity number (baseline) for either electricity or natural gas,
 $TU_{(B)}$ = cumulative total electricity or natural gas used (kilowatt-hours or ccf) in FY 2003 for all DOE-LM sites,
 $SF_{(B)}$ = cumulative total building gross square footage in FY 2003 for all DOE-LM sites.

The baseline EI is used as a basis of comparison for determining future performance toward the EO 13423 energy-intensity-reduction goal.

Metered data are used to establish the baselines, where applicable. In the absence of metered data, data from the local utilities are used. In instances where data are not available, energy usage data can be estimated using significant factors such as the number of employees, the types of buildings, and the applicable operations. Assumptions and estimating techniques are documented to allow for consistency in data acquisition and comparison.

Relevant energy use data are collected from each site for both the baseline and performance periods and managed in a database. Tracked data include kilowatt-hours used, ccf used, periods of use, sources of data, and changes to building gross square footage. An example of the database table used for energy-data tracking is provided in Table 1-1. A separate table is maintained for each site.

For DOE-LM sites that transferred to DOE-LM after FY 2003, the baseline is established using data from the first full fiscal year after transition.

Table 1–1. Example Database Table for Energy-Use Tracking

DOE-LM Site Name: _____						
Specific Use Location ^a	Total amount of energy used in reporting period (kilowatt-hours or thousand cubic feet)	Source of use data	Reporting Period Dates ^b		Any changes to building square footage during this reporting period? (Yes/No—explain Yes)	Comment
			Start Date (mm/dd/yy) ^c	End Date (mm/dd/yy) ^c		
Electricity Energy (kilowatt-hours)						
Location #1 ^d :						
Location #2:						
Natural Gas Energy (thousand cubic feet)						
Location #1:						
Location #2:						

^aList all separate use locations for each specified Goal Metrics Program site (e.g., all meters or utility bills).

Additional rows may be inserted as needed.

^bEnsure that data are represented for each day of the reporting period and that no date gaps occur between reporting periods.

^c(mm/dd/yy) = month/day/year

^dEach separate source is uniquely identified.

Adjustments to the baseline data in out years may be warranted under certain circumstances (e.g., the addition or removal of a large building). All such adjustments are documented.

Individual site baseline EI numbers are also calculated for each source-type to allow for separate site performance analysis.

1.5.2 Performance Determinations

Performance toward the EO 13423 goal is based on an annual fiscal year performance period and a cumulative performance period (from FY 2004 through FY 2015). A cumulative EI number is calculated for each performance period. The calculated percent change, as compared to baseline, is used to determine energy intensity improvement (energy efficiency). Percent change is calculated by dividing the difference between the baseline EI and the performance period EI by the baseline EI, multiplied by 100.

This is represented as:

$$\Delta \% = \frac{EI_{(B-E \text{ or } NG)} - EI_{(P-E \text{ or } NG)}}{EI_{(B-E \text{ or } NG)}} \times 100$$

where: $\Delta \%$ = change in percentage for set performance period,
 $EI_{(B-E \text{ or } NG)}$ = Energy Use Index number (baseline) for either electricity or natural gas,
 $EI_{(P-E \text{ or } NG)}$ = Energy Use Index number during set performance period for either electricity or natural gas.

The resulting percentage must be a positive value to indicate that energy use intensity (energy efficiency) has improved.

The E2G2 Program also conducts more frequent performance determinations (including site-specific determinations) to determine ongoing performance toward the EO 13423 goals (i.e., to assess whether progress is on track toward meeting the EO 13423 reduction goal). Quarterly EI numbers are calculated for both individual and cumulative sites to allow for a comparison of discrete performance periods to baseline. These more frequent determinations allow the E2G2 Program to take corrective actions, if necessary, to ensure goal achievement.

As necessary, corrective action measures are recommended and implemented to address deficiencies toward achieving the overall DOE-LM energy intensity reduction goal.

1.6 Reporting Requirements

- The E2G2 Program team prepares quarterly reports that identify newly initiated energy-efficiency efforts and updated performance toward energy-intensity-reduction goals established by EO 13423. These reports are provided to DOE-LM.
- The E2G2 Program team reports to contractor management quarterly on progress toward meeting annual initiatives and goals.
- Environmental Compliance (EC) reports EMS progress to DOE-LM in the Quarterly Performance Assurance Report.

1.7 Training

All employees will receive awareness-level training as well as necessary refresher training regarding the EO 13423 E2G2 goals, the purpose and scope of the E2G2 Program, environmental impacts of the employees' actions, and the planned implementation of the program.

Staff responsible for any aspect of energy use, including purchasing power, designing or preparing design specifications for facilities or installed equipment that consume energy, or purchasing or managing facilities or installed equipment that consume energy, will be qualified and trained through work experience, formal or on-the-job training and education, and refresher training to perform their responsibilities in relation to the E2G2 Program.

E2G2 team members will be qualified and trained through work experience, formal or on-the-job training and education, and refresher training to perform their responsibilities.

Training plans will be developed in consultation with the contractor Training staff to identify training needs, sources of training, and the reasonable time for completion of the training.

1.8 Records

The following documents are considered records:

- E2G2 Program decision documents
- Audit reports
- Energy-efficiency feasibility evaluations
- Energy-efficiency-improvement plans
- Quarterly performance reports and performance calculations
- Metrics data
- E2G2 Program media campaign information

E2G2 Program records are maintained in records files for the sites, projects, and programs to which pertinent E2G2 Program activities apply. Such records are managed in accordance with the requirements of the *Records Management Manual* (LMS/POL/S04327).

2.0 Renewable Energy—EMS Program #2

The DOE-LM and contractor Renewable Energy Program serves to increase and maximize the amount of renewable energy in the total energy consumed while conducting the DOE-LM mission.

2.1 Purpose

The purpose of this Renewable Energy Program plan is to implement DOE Orders 450.1 and 430.2B, the renewable energy elements in EO 13423, and the Energy Policy Act of 2005 (EPACT 2005) (42 U.S.C. 15852 et seq.).

This plan adheres to the Integrated Safety Management System concept of promoting continuous improvement through the “Plan-Do-Check-Act” approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

2.2 Scope

The EO 13423 stated goals for renewable energy are: Ensure that (1) at least half of the statutorily required renewable energy consumed by the agency in a fiscal year comes from new renewable energy sources, and (2) to the extent feasible, the agency implements renewable energy generation projects on agency property for agency use.

As defined in the EPACT 2005, “statutorily required renewable energy consumed” means not less than 3 percent in fiscal years 2007–2009, not less than 5 percent in fiscal years 2010–2012, and not less than 7.5 percent in fiscal years 2013 and each fiscal year thereafter.

The Renewable Energy Program is designed to meet the EO 13423 renewable energy goals and to provide a foundation to exceed the goals and provide leadership in renewable energy use (“meet, exceed, lead”). This program is intended to be implemented in accordance with any applicable contractor requirements of DOE orders.

2.3 Responsibilities

DOE-LM and contractor senior management are responsible for considering and approving contractor renewable energy performance goals, objectives, and metrics; review of proposals for renewable energy initiatives and plans to meet the program goals and objectives; and approval of and concurrence in proposals and expenditures in accordance with contractor procedures.

Project management is responsible for ensuring that approved budgeted resources are available and that programmatic and technical direction is promulgated in a timely manner to implement the Renewable Energy Program.

Site leads and line managers are responsible for including consideration of renewable energy sources in carrying out assigned work. This includes responsibility for performing renewable energy feasibility evaluations in accordance with this program. Site leads and line managers are also responsible for ensuring that staff and equipment are assigned in a timely manner to comply with management programmatic and technical direction to implement the Renewable Energy

Program. This includes responsibility for gathering information about energy uses for activities under their purview for use in the program metrics.

Contractor employees assigned by site leads or line managers are responsible for performing tasks within the scope of duties and commensurate with their level of expertise and authority to implement the Renewable Energy Program.

Renewable Energy Program team members are responsible for developing the knowledge, skills, and abilities to provide programmatic and technical information necessary to achieve the scope of the program; for promoting and championing the program; for helping all employees become aware of the program; and for facilitating program implementation.

The EMS Core Team or program team will propose site-specific or programmatic goals that are developed in accordance with the EMS Description, aligned with the applicable orders and guidance, and approved by contractor senior management and DOE-LM.

All employees are responsible for completing awareness-level training about the Renewable Energy Program in a timely manner and on a frequency determined by contractor management.

2.4 Procedure

The contractor catalogues and provides a summary status of existing DOE-LM renewable energy projects annually.

The contractor prepares an annual listing of the DOE-LM sites where energy consumed could come from new renewable energy sources (such as sources offered by the utility provider supplying energy to the sites) and the status of existing DOE-LM renewable energy projects.

Each DOE-LM site must install an on-site renewable energy project or show that on-site renewable energy is not feasible at the site and that a waiver is necessary. A renewable energy feasibility evaluation for each site will be completed in accordance with DOE Order 430.2B for DOE-LM and contractor management review and approval or execution of a waiver.

The contractor will conduct an on-site renewable energy feasibility evaluation in accordance with DOE Order 430.2B, including the Contractor Requirements Document, as applicable.

The EMS Core Team develops annual renewable energy goals and initiatives for consideration by DOE-LM and contractor senior management.

The contractor implements the annual renewable energy goals and initiatives approved by DOE-LM and contractor senior management.

2.5 Program Metrics

The renewable energy used as a proportion of total energy at each DOE-LM site will be documented annually. The percentage of renewable energy used will be compared to the annual EMS goal for the reporting period.

The status and outcome of completed feasibility evaluations and proposed waivers for each DOE-LM site will be documented annually. Completed feasibility evaluations will be compared to the annual EMS goal for performing the feasibility evaluations at each DOE-LM site for the reporting period.

The progress toward completion of any on-site renewable energy program will be documented annually. Progress will be compared to the annual EMS goal for project completion.

2.6 Reporting Requirements

The Renewable Energy Program team reports to contractor management quarterly on progress toward meeting program goals and initiatives, and annually on the program metrics.

The Renewable Energy Program team provides information to complete reports to DOE-LM as required by DOE-LM.

The Renewable Energy Program team provides feasibility evaluations to contractor management for review and approval.

2.7 Training

Employees will receive awareness-level training as well as refresher training regarding the EO 13423 renewable energy goals, the purpose and scope of the Renewable Energy Program, and the implementation of the program.

Staff responsible for any aspect of energy use, including purchasing power, designing or preparing design specifications for facilities or installed equipment that consume energy, or purchasing or managing facilities or installed equipment that consume energy, will be trained through work experience, formal or on-the-job training and education, and refresher training to perform their responsibilities in relation to the Renewable Energy Program.

Renewable Energy Program team members will be trained through work experience, formal or on-the-job training and education, and refresher training to perform their responsibilities.

Training plans are developed in consultation with the contractor Training staff to identify training needs, sources of training, and the reasonable time for completion of the training.

2.8 Records

Renewable Energy Program records are maintained in an identifiable records system, which are maintained in addition to any records that are maintained in the record files for individual sites, programs, and projects for which the Renewable Energy Program was implemented. Records are managed in accordance with the requirements of the *Records Management Manual*.

The following documents are considered records:

- On-site renewable energy feasibility evaluations.
- Waivers for on-site renewable energy projects.
- Program metrics reports submitted to contractor management.

3.0 Water Conservation—EMS Program #3

The DOE-LM and contractor Water Conservation Program (WCP) promotes sustainable water use practices and natural resource conservation at DOE-LM sites.

3.1 Purpose

The purpose of this WCP implementation plan is to establish a systematic approach for managing water use at DOE-LM sites. Conformance with this plan will ensure the use of sustainable water conservation practices and compliance with EO 13423, DOE Order 450.1, and DOE Order 430.2B.

This plan adheres to the Integrated Safety Management System concept of promoting continuous improvement through the “Plan-Do-Check-Act” approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

3.2 Scope

The WCP addresses the management of potable and nonpotable water use, loss, waste, and reuse at all existing and newly transitioned DOE-LM sites. It provides a system for (1) measuring and tracking water use intensity, (2) identifying and prioritizing efficiency improvement opportunities, (3) implementing approved efficiencies, and (4) determining and reporting performance toward program goals and requirements.

EO 13423 mandates that all federal agencies, beginning in 2008, reduce the intensity of potable water consumption relative to the baseline of the water use in FY 2007 by a minimum of 2 percent annually through the end of FY 2015, or a minimum of 16 percent by the end of FY 2015.

The portion of this WCP addressing the EO 13423 goal is referred to as the “Goal Metrics Program.” It includes all DOE-LM sites or portions of sites that meet the following criteria:

- Potable water is used at the site; and
- The site is owned by the federal government under DOE-LM jurisdiction and control (owned by DOE-LM) and operated by DOE-LM or its contractor; or
- The site is owned by DOE-LM, and although the site is leased to another entity, DOE-LM or its contractor directly pays the water utility bill; or
- The site is owned by another entity and leased by DOE-LM or its contractor, and DOE-LM or its contractor directly pays the water utility bill.

Water management activities associated with groundwater and surface water remediation are specifically excluded from this WCP.

The management and protection of surface water and groundwater quality is addressed in the *Environmental Protection Manual* (LMS/POL/S04329).

Bottled water consumption is outside the scope of this WCP.

Guidance provided in the *Instructions for Implementing Executive Order 13423*, “Strengthening Federal Environmental, Energy, and Transportation Management” (CEQ 2007) and the *DOE Supplemental Guidance to the Instructions for Implementing Executive Order 13423; Establishing Baseline and Meeting Water Conservation Goals of Executive Order 13423* (DOE 2008a) was used to prepare this implementation plan.

3.3 Responsibilities

DOE-LM and contractor senior management are responsible for approving WCP performance goals and objectives recommended by the WCP team; reviewing proposals for DOE-LM–approved water efficiency initiatives and plans to meet the goals and objectives; approving the frequency of WCP awareness-level training; approving and concurring in proposals and expenditures in accordance with contractor procedures.

Project management is responsible for ensuring that approved, budgeted resources are available and for ensuring that programmatic and technical direction is promulgated in a timely manner to implement the WCP.

Site leads and line managers are responsible for considering water conservation while carrying out assigned work. They are responsible for providing water use information and data, as requested, to support the WCP. Site leads and line managers must ensure that staff and equipment are assigned in a timely manner to comply with management’s programmatic and technical direction to implement the WCP. They must also provide information about newly transitioned DOE-LM sites to the WCP team lead.

WCP team members are responsible for developing knowledge, skills, and abilities to provide programmatic and technical information necessary to achieve this program’s scope. Periodically, the team members recommend program goals and initiatives, as appropriate. In addition, they are responsible for promoting and championing the program, for helping employees become aware of the program, for obtaining necessary training, and for facilitating program implementation. WCP team members also provide crossover technical support to other DOE-LM EMS programs as necessary.

The EMS Core Team, program team, or both may propose site-specific or programmatic goals that are developed in accordance with the EMS Description, aligned with the applicable orders and guidance, and approved by senior management and DOE-LM.

Contractor staff members are responsible for performing tasks within the scope of duties assigned by site leads and line managers, at a level commensurate with their expertise, and in accordance with their authority to implement the WCP. Staff members are also responsible for completing WCP awareness-level training in a timely manner.

3.4 Procedure

3.4.1 Site Categorization

An initial site determination is performed for each DOE-LM site, including newly transitioned sites, to obtain relevant water use data and to identify how each site is categorized within the WCP. The site category is used to determine what WCP requirements apply. WCP categories include the following:

- **Non-WCP site**—This designation applies to DOE-LM sites where neither potable nor nonpotable water is used. Unless site conditions change, further application of the WCP is not relevant at non-WCP sites.
- **General site**—This designation applies to any DOE-LM site (or portions of a site) where potable water, nonpotable water, or both are used. The procedures identified in Section 3.4.2, “General Sites,” apply to these sites.
- **Goal Metrics Program site**—This designation applies to any site (or portions of a site) that meets the Goal Metrics Program site inclusion criteria identified in Section 3.2. Note that based on the inclusion criteria, all Goal Metrics Program sites are inherently also general sites. Accordingly, the procedures for general sites (Section 3.4.2) along with those for Goal Metrics Program sites (Section 3.4.3) apply to Goal Metrics Program sites.

A master list identifying how each DOE-LM site is categorized is generated and maintained for reference.

Appendix 3A presents the procedure for performing site determinations.

A review of the initial site determination information is conducted periodically to ensure that it remains current.

3.4.2 General Sites

The following overarching WCP components apply at all general sites.

3.4.2.1 Environmentally Preferable Purchasing Program

The preferential purchase of water-efficient products and services that use sustainable environmental practices is required. Where applicable, WaterSense® (EPA 2008b) products should be purchased, and irrigation contractors who are certified through a WaterSense-labeled program should be procured. This requirement is implemented through the Environmentally Preferable Purchasing Program (see Chapter 4).

3.4.2.2 Sustainable Buildings

All new construction and existing building-renovation activities must follow the water-use-efficiency criteria established in the EMS Sustainable Buildings Program. This applies to buildings and landscaping. This requirement is implemented through the Sustainable Buildings Program (see Chapter 6).

3.4.2.3 Leased Facilities

To the greatest extent practicable, DOE-LM must include a preference for buildings that have attained Leadership for Environmental and Energy Design “gold” certification, with emphasis on water efficiency in the selection criteria for acquiring leased buildings. When entering into renegotiations or extensions of existing leases, DOE-LM must include lease provisions that support the guiding principles for sustainable buildings, as identified by the EMS Sustainable Buildings Program (see Chapter 6).

3.4.2.4 Other Water-Efficiency Initiatives

Assessments of and improvements to water use in landscaping and the use of nonpotable water are potentially applicable at all general sites, including Goal Metrics Program sites. These initiatives are discussed in the following sections. However, although additional requirements for initiatives to promote water use efficiency also apply at Goal Metrics Program sites (see the discussion in Sections 3.4.3.5 through 3.4.3.7), such initiatives are not considered a priority at non-Goal Metrics Program sites because DOE-LM’s control over water use at these sites is limited.

The WCP team lead is responsible for maintaining a list of potential opportunities to continuously improve the efficiency of water use and the overall WCP for future application considerations at non-Goal Metrics Program sites. Implemented improvements will be measured, and associated water use reductions will be tracked and reported, but the performance cannot be applied toward attaining the EO 13423 goal. These opportunities may include the following subject areas:

Landscaping

Identify opportunities and implement actions to reduce the use of potable and nonpotable water in the course of landscaping activities and promote water-efficient landscape irrigation.

Nonpotable Water Use

Identify opportunities and implement actions to increase the use of nonpotable water sources such as reclaimed, recycled, and gray water for appropriate application.

Media Campaign

Implement a media campaign to communicate to the workforce and to motivate employees to become more efficient in their use of water and to minimize waste.

Information Resource Development

Network with other DOE programs, federal agencies, and private entities to facilitate the exchange of water-conservation ideas and information, to share resources, and to promote continual improvement.

Employee Incentive Program

Develop and implement an employee-incentive program to reward exceptional performance, by teams or individuals, associated with water-conservation improvements.

Additional WCP Goals

Additional WCP goals, initiatives, and metrics beyond those prescribed in this document are periodically developed and proposed by the WCP, as appropriate. Approved goals, initiatives, and metrics beyond those prescribed in this document are posted on the contractor's EMS website.

3.4.3 Goal Metrics Program Sites

In addition to the components identified for general sites in Section 3.4.2, the following procedures apply at Goal Metrics Program sites.

3.4.3.1 Metrics Applicability

The metrics program that is applicable to Goal Metrics Program sites, including baseline development, metrics tracking, performance assessment, and reporting, is discussed in Section 3.5.

3.4.3.2 Initial Water System Screening

The WCP team conducts an initial water system screening at each Goal Metrics Program site to gather preliminary information necessary to develop the metrics baseline and to prioritize future WCP audits and efficiency-improvement initiatives. The information obtained from the screening contains site-contact information, current water use operations, activities, practices, metering locations, the gross square footage of buildings (as applicable), maps, and information on water utility payment processes and contracts.

3.4.3.3 Metering

Water use meters should be used at all Goal Metrics Program sites or portions of sites to ensure the adequate collection of water use data. An assessment of existing metering devices will be performed at all Goal Metrics Program sites to develop a list of those that are currently unmetered or inadequately metered.

Advanced metering devices must be installed at all Goal Metrics Program sites without adequate metering. Advanced metering systems should provide real-time data-collection information and be automated into the metrics database system. The replacement of existing meters at Goal Metrics Program sites with advanced metering systems will occur as necessary.

The placement of water use meters will capture all quantities of used potable water at each Goal Metrics Program site. Water use at portions of sites that are not included should not be captured by the metering.

3.4.3.4 Conduct Audits

Water audits must be conducted at all Goal Metrics Program sites' square footage at least every 5 years. Audits are conducted to identify sources of water loss, waste, and reuse potential. Unmetered Goal Metrics Program sites are considered for auditing prioritization.

3.4.3.5 Efficiency-Improvement Plans

On the basis of results of a Goal Metrics Program site's initial water system screenings or WCP audit, a water-efficiency-improvement plan will be developed for each site to identify opportunities to improve water use efficiencies and to minimize water loss and waste. Each plan should be detailed and identify specific implementation milestones necessary for achieving the overall DOE-LM water-intensity-reduction goals (reduce by 2 percent annually or 16 percent by FY 2015). Proposed operational, maintenance, processing, and technological improvement options (including retrofitting or replacing equipment) will be evaluated using water-efficiency-opportunity assessments. The plan should use a variety of water management strategies and tools to meet the goals, and at a minimum, it should include four "best management" practices published by the DOE Federal Energy Management Program (DOE 2007a) on their website (<http://www1.eere.energy.gov/femp/>). Water management plans should be incorporated into each Goal Metrics Program site's planning and operating processes.

Water-efficiency-opportunity assessments will fully assess the systematic scope, impacts, and benefits associated with any proposed improvements. The WCP team will recommend appropriate efficiency-improvement initiatives to DOE-LM for approval prior to implementation. All recommended water-efficiency initiatives will be life-cycle cost effective. Initiatives with the greatest potential percentage of efficiency gain or circumstantial need will be given WCP priority.

3.4.3.6 Efficiencies Implementation

The WCP team will implement approved efficiency measures as appropriate.

3.4.3.7 Efficiency Tracking and Reporting

The WCP team will track and report implemented performance improvements.

3.5 Program Metrics

The following metrics apply to Goal Metrics Program sites.

3.5.1 Baseline Establishment

The DOE-LM water-use-metrics baseline is established using the cumulative total FY 2007 water use and building size data from all Goal Metrics Program sites. The baseline is defined as gallons of potable water used per building gross square foot during FY 2007. A baseline water-use-intensity (WUI) number is calculated by dividing the cumulative annual potable water use total from all Goal Metrics Program sites by the cumulative total building gross square footage from all Goal Metrics Program sites.

This is represented as:

$$B_{(GMPS)} = WUI_{(B)} = \frac{TG_{(GMPS-07)}}{SG_{(GMPS-07)}}$$

where:

- $B_{(GMPS)}$ = DOE-LM baseline (in FY 2007 for all Goal Metrics Program sites),
 $WUI_{(B)}$ = Water Use Intensity number (baseline),
 $TG_{(GMPS-07)}$ = cumulative total gallons of potable water used (in FY 2007 for all Goal Metrics Program sites),
 $SG_{(GMPS-07)}$ = cumulative total building gross square footage (in FY 2007 for all Goal Metrics Program sites).

The WUI number is used as a basis of comparison for determining future performance toward the EO 13423 water-use-reduction goal (see Section 3.5.2).

Metered data are used to establish the baseline, where applicable. In the absence of metered data, data from the local water suppliers are used. In instances where data are not available, water usage data are estimated using significant factors such as the number of employees, the amount of irrigated acreage, and water processes. Assumptions and estimating techniques are documented to ensure consistency in data acquisition and comparison.

Relevant water use data are collected from each site and managed in a database. Tracked data include gallons of potable water used, use locations, periods of use, sources of data, and changes to building gross square footage. The database is used to manage data for both the baseline and performance periods. Table 3–1 provides an example of the database table used for a Goal Metrics Program site’s data tracking. A separate table is maintained for each site.

Table 3–1. Example Database Table for Water Use Tracking

DOE-LM Goal Metrics Program Site Name: _____						
Specific Use Location ^a	Total Amount of Potable Water Used in Reporting Period (Gallons)	Source of Use Data	Reporting Period Dates ^b		Any Changes to Square Footage of Buildings During This Reporting Period? (Yes/No—explain Yes)	Comment
			Start Date (mm/dd/yy) ^c	End Date (mm/dd/yy) ^c		
Location #1:						
Location #2:						

^aList all separate use locations for each specified Goal Metrics Program site (e.g., all meters or utility bills). Additional rows may be inserted as needed.

^bEnsure that data are represented for each day of the reporting period and that no date gaps occur between reporting periods.

^c(mm/dd/yy) = month/day/year

Adjustments to the baseline data in out years may be warranted under certain circumstances (e.g., the addition or removal of a large building). All such adjustments are documented.

Individual Goal Metrics Program site baseline WUI numbers are also calculated to allow for separate site performance analysis.

3.5.2 Performance Determinations

Performance toward meeting the EO 13423 goal is based on an annual fiscal year performance period and a cumulative performance period (from FY 2008 through FY 2015). A WUI number for DOE-LM Goal Metrics Program sites will be calculated for each performance period. The calculated change in percentage, as compared to the baseline, will be used to determine water-use-intensity-improvement performance. The change in percentage will be calculated by dividing the difference between the baseline WUI and the performance period WUI by the baseline WUI, multiplied by 100 percent.

This is represented as:

$$\Delta\% = \frac{WUI_{(B)} - WUI_{(P)}}{WUI_{(B)}} \times 100$$

where: $\Delta\%$ = change in percentage (for performance period),
 $WUI_{(B)}$ = Water Use Intensity number (baseline),
 $WUI_{(P)}$ = Water Use Intensity number (during a set performance period).

The resulting percentage must be a positive value to indicate that water use intensity has improved.

The WCP team will also conduct more-frequent performance determinations (including site-specific determinations) to determine ongoing performance toward meeting the EO 13423 goals (i.e., to assess whether progress is on track toward meeting the EO 13423 reduction goal). WUI numbers are calculated quarterly for individual and cumulative DOE-LM sites to allow for a comparison of discrete performance periods to baseline. These more-frequent determinations allow the WCP to take corrective actions, if necessary, to ensure goal achievement.

Although not applicable toward the EO 13423 reduction goal, the performance of implemented water-use-efficiency improvements at non-Goal Metrics Program sites will be similarly determined and reported.

As necessary, corrective-action measures will be recommended and implemented to address deficiencies toward achieving the overall DOE-LM water-intensity-reduction goal.

3.6 Reporting Requirements

WCP quarterly reports are prepared that identify newly initiated water-conservation efforts and updated performance toward water-intensity-reduction goals established by EO 13423. These reports are provided to DOE-LM.

3.7 Training

All employees will receive awareness-level training as well as necessary refresher training regarding the EO 13423 WCP goals, the purpose and scope of this program, environmental impacts of the employees' actions, and the planned implementation of the program.

Staff responsible for any aspect of water conservation, including procuring products or services, designing or preparing design specifications for facilities or installed equipment that uses water, managing sites or installed equipment that uses water, and managing meters and databases, will be trained through work experience, formal or on-the-job training and education, and refresher training to fulfill their responsibilities in relation to the WCP.

WCP team members will be trained through work experience, formal or on-the-job training and education, and refresher training to fulfill their responsibilities. They will also be trained to direct and implement the water management program.

Training plans will be developed in consultation with the contractor Training staff to identify training needs, sources of training, and the reasonable time for completion of the training.

3.8 Records

The following records are generated as a result of implementing the WCP:

- WCP decision documents
- Audit reports
- Water-efficiency-opportunity assessments
- Water-efficiency-improvement plans
- Quarterly performance reports and performance calculations
- Metrics data
- WCP media campaign information

WCP records are maintained in records files for the sites, projects, and programs to which pertinent WCP activities apply. Such records are managed in accordance with the requirements of the *Records Management Manual*.

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Appendix 3A

Procedure for Performing DOE-LM EMS Water Conservation Program Site Determinations

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Procedure for Performing DOE-LM EMS Water Conservation Program Site Determinations

This procedure is applicable to U.S. Department of Energy (DOE) Office of Legacy Management (LM) Water Conservation Program (WCP) site determinations, as required by Section 3.4 of the WCP implementation plan. The determinations result in the identification of a site's WCP category, which is necessary for WCP-implementation purposes. The contractor site lead is responsible for assisting the WCP team lead in making the DOE-LM site determination.

- The attached site-determination example form (Form EMS WCP-001) must be completed for each DOE-LM site identified in the *LM Site Management Guide aka the "Blue Book,"* (DOE-LM 2007), following the instructions on the form. The form must be completed for all portions of the site.
- The completed answers to the questions on the site-determination form should be applied to the designation flow diagram (Figure 3A-1) to make the applicable site-category determination.
- Once the form is complete, the site-determination information from the "Site Category" and the date the determination was made (either the initial date or the subsequent review date) should be added to the WCP DOE-LM site-categorization master list, which the WCP team lead maintains.
- The original completed site-determination form should be submitted to the EMS WCP record file, and a copy of the form should be retained in the EMS WCP working file, which the WCP team lead maintains. The site lead should also receive a copy.
- The initial site-determination information should be reviewed periodically for each site, to ensure that sites remain accurately categorized. This site-determination review should be performed at least every 2 fiscal years, beginning in fiscal year 2010.
- For sites newly transitioning into the DOE-LM program, an initial site-determination must be completed at the time of transition.

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**Water Conservation Program
Site-Determination Form**

Instructions: Complete a separate form for each site or portions of a site. Reference Chapter 10, "Definitions," for terminology clarification.

DOE-LM Site Name: _____

Contractor Site Lead: _____

Answer the following questions:

- | | |
|--|-----------|
| (1) Is potable water used at the DOE-LM site? | Yes or No |
| (2) Is nonpotable water used at the DOE-LM site? | Yes or No |

If the answers to questions 1 and 2 are "No," then no additional information is required, and the categorization of the site can be completed.

- | | |
|--|-----------|
| (3) Is the site (or any portion of the site) owned by DOE? | Yes or No |
| (4) Is the site (or any portion of the site) operated by DOE-LM or its contractor? | Yes or No |
| (5) Is the site (or any portion of the site) leased to another entity (besides the DOE-LM contractor)? | Yes or No |
| (6) Does DOE or its contractor directly pay the water utility bill? | Yes or No |

Apply the answers to questions 1 through 5 to the attached site-designation flow diagram to determine the WCP site category. Circle the applicable site category:

Non-WCP Site

General Site

Goal Metrics Program Site

List all persons (including title and date) interviewed to obtain information:

Initial Site WCP Category Determination Made By: _____

(Name)

Date Initial Site WCP Category Determination Made: _____

(Date)

Use side 2 of this form to document site-category-verifications reviews.

Example form number EMS WCP-001

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**Water Conservation Program
Site-Determination Form (continued)**

Use this side of the form to document site-category-verifications reviews.

Verification review of site WCP category determination made by:

(Name) (Date)

Circle the applicable determination:

Retain original site category.

Change of site category required. Explain.

Verification review of site WCP category determination made by:

(Name) (Date)

Circle the applicable determination:

Retain original site category

Change of site category required. Explain.

Verification review of site WCP category determination made by:

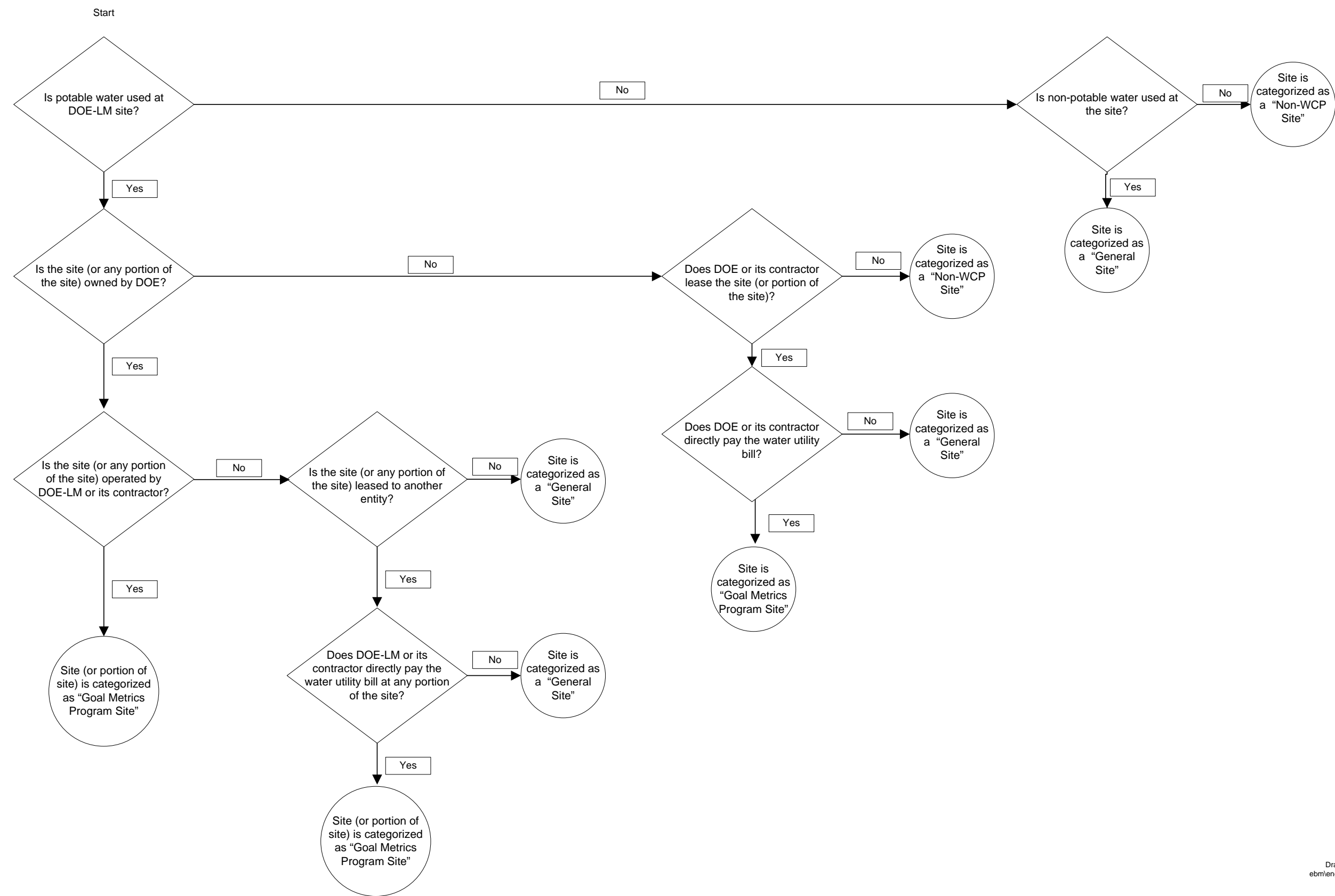
(Name) (Date)

Circle the applicable determination:

Retain original site category

Change of site category required. Explain.

Example form number EMS WCP-001



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Figure 3A-1. Water Conservation Program DOE-LM Site Designation Flow Diagram

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4.0 Environmentally Preferable Purchasing—EMS Program #4

The DOE-LM and contractor Environmentally Preferable Purchasing (EPP) Program is a national approach to educate DOE-LM and contractor staff and increase the acquisition of environmentally friendly commodities and services while conducting the DOE-LM mission.

4.1 Purpose

This EPP Program plan implements a process to manage and enhance DOE-LM's purchase of environmentally preferable goods and services. The plan also serves to facilitate worker awareness about the EPP Program's purpose, requirements, and goals.

This plan adheres to the Integrated Safety Management System concept of promoting continuous improvement through the "Plan-Do-Check-Act" approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

4.2 Scope

The EPP Program is designed to implement DOE Order 450.1 and EO 13423 requirements for the acquisition of goods and services by (1) use of sustainable environmental practices, including the acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products, and (2) use of paper of at least 30 percent post-consumer fiber content.

The EPP Program is designed to ensure that EO 13423 initiatives and goals are met and to provide a foundation to expand the breadth of "green" initiatives across the projects and programs directly supporting the DOE-LM long-term surveillance and maintenance sites. This program is intended to be implemented in accordance with any applicable contractor requirements of DOE orders.

4.3 Responsibilities

DOE-LM and contractor senior management are responsible for approving contractor EPP performance goals and objectives, review of proposals for "green" initiatives and plans to meet the goals and objectives, and approval of and concurrence in proposals and expenditures in accordance with contractor policies, plans, and procedures.

Project management is responsible for ensuring that approved, budgeted resources are available and that programmatic and technical direction is promulgated in a timely manner to implement the EPP Program.

Site leads and line managers are responsible for including consideration of environmentally friendly sources in carrying out assigned work. This includes responsibility for performing alternative solutions feasibility evaluations in accordance with this program. In addition, site leads and line managers are responsible for ensuring that resources (staff, supplies, and services) are assigned in a timely manner to comply with management programmatic and technical direction to implement the EPP Program. This includes responsibility for gathering information about environmentally preferable products and services for use in the program metrics.

All employees and subcontractors are responsible for performing tasks within the scope of duties assigned by site leads and line managers and commensurate with their level of expertise and authority to implement the EPP Program. Also, all employees are responsible for completing awareness-level training about the EPP Program in accordance with the frequency determined by contractor management.

EPP Program team members (assigned in accordance with contractor policies and procedures) are responsible for developing knowledge, skills, and abilities to provide programmatic and technical information necessary to achieve the scope of the program, to promote and champion the program, to help all employees become aware of the program, and to facilitate program implementation. In addition, the EPP Program team is responsible for developing and recommending goals and initiatives.

4.4 Procedure

The EPP Program has two primary objectives to implement. The first and more predominant is the establishment of a system to capture the contractor's efforts toward the pursuit of environmentally preferable purchases. The second objective is to advocate the use of 30 percent recycle-content paper across DOE-LM site projects and supporting programs. The activities listed below support these two objectives.

- Define DOE-LM EMS program codes. Develop executive-level definition of applicability for each program and provide key examples.
- Tailor tools to recognize EPP consideration toward EMS programs (e.g., Purchase Requisition Form (SF90), a credit card log, and EMS code instructions for personnel.
- Educate and train EC staff and DOE-LM EMS Program leads on tracking and reporting.
- Inform and educate the workforce on the use of tailored tools in advance of formal implementation of the program.
- Propose annual EPP Program goals and initiatives for consideration by contractor management.
- At fiscal year end, evaluate the EPP Program performance toward “green” initiatives, specifically looking for ways to strengthen environmental stewardship and to incorporate lessons learned and feedback. A program survey conducted across the workforce or equivalent is used to collect performance feedback.

4.5 Program Metrics

- The EPP Program team provides an EPP performance report for each DOE-LM EMS program on a quarterly basis. These reports are generated from the electronic procurement system (JAMIS) and the electronic credit card log, both of which allow sorting by the DOE-LM EMS program codes. Each DOE-LM EMS program team in turn can use the data to generate the quarterly EPP progress narrative highlighting the activities during the period.
- Provide a quarterly evaluation of the impacts to the goal for the procurement actions coded as “considered, not implemented.”

- Perform a quarterly self-evaluation on EPP Program performance and generate lessons learned.
- Track overall EPP performance as a metric comparing total EPP purchases to total purchases using coded exceptions.

4.6 Reporting Requirements

- The EPP Program team reports to contractor management quarterly on progress toward meeting annual initiatives and goals.
- The EPP Program team provides quarterly performance progress to the EMS Core Team lead.
- The EMS Core Team lead reports overall EMS progress to the EC lead.
- The EC lead includes EMS progress in the contractor's Quarterly Performance Assurance Report to DOE-LM.

4.7 Training

All employees will receive awareness-level training and necessary refresher training on the purpose and scope of the EPP program and the planned implementation of the program.

Staff responsible for any aspect of purchasing and acquiring subcontracted services or designing or preparing design specifications for facilities or installed equipment that warrant "green" initiative consideration will be trained through work experience, formal or on-the-job training and education, and refresher training to perform their responsibilities in relation to the EPP Program.

EPP Program team members will be trained through work experience, formal or on-the-job training and education, and refresher training to perform their responsibilities.

Training plans will be developed in consultation with the contractor Training staff to identify training needs, sources of training, and the schedule for training completion.

4.8 Records

EPP Program records will be maintained in an identifiable records system that is in addition to any records that are maintained in the record files for individual sites, programs, and projects for which the EPP Program was implemented. Records are managed in accordance with the requirements of the *Records Management Manual*.

The following documents are considered records:

- Purchase Requisition Form (SF90)
- Credit card company monthly statements
- Purchase receipts

End of current text

5.0 Waste Minimization and Pollution Prevention—EMS Program #5

The purpose of the DOE-LM and contractor Waste Minimization and Pollution Prevention (WMP2) Program is to promote a more sustainable society and implement waste minimization and pollution prevention as one of several strategies in the DOE-LM EMS for protecting the environment, conserving resources, and enhancing the DOE-LM mission nationwide.

5.1 Purpose

The purpose of this WMP2 Program plan is to implement DOE Order 450.1 DOE Order 430.2B, and the pollution prevention and recycling elements in EO 13423.

This plan describes the process of implementing and tracking the progress of pollution prevention achieved by decreasing the purchase of hazardous chemicals and replacing them with chemicals that are more environmentally friendly and less toxic. The plan also describes the process of implementing and tracking the progress of waste minimization achieved by establishing mechanisms to recycle or reuse, to the extent feasible, solid waste and hazardous chemicals that result from DOE-LM operations.

This plan adheres to the Integrated Safety Management System concept of promoting continuous improvement through the “Plan-Do-Check-Act” approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* program components and requirements by reference.

5.2 Scope

Typically, WMP2 is universal in scope. However, because the DOE-LM EMS is programmatic, many aspects of WMP2 are covered in other program plans. Therefore, the scope of this WMP2 plan is limited to (1) recycling/reusing all types of materials that are classified as solid waste (e.g., plastic, cardboard, steel, glass, miscellaneous metals, aluminum, paper) and hazardous chemicals, (2) reducing the hazardous chemical inventory through alternative “green” product procurement, and (3) developing and implementing a pollution prevention opportunity assessment (PPOA) process. The contractor is responsible for periodically assessing DOE-LM activities and providing results that help reduce the generation of waste, reduce the use of hazardous chemicals, and enhance operational efficiency through associated cost benefits.

The WMP2 Program accomplishes this scope by:

- Tracking the volume of waste generated and recycled at major DOE-LM sites.
- Tracking the purchases of hazardous chemicals and “green” alternative chemicals by DOE-LM, the contractor, and subcontractors through the EPP Program procurement system (for more information on the EPP Program, see Chapter 4).
- Implementing a system for tracking hazardous chemical inventories.
- Using DOE Order 450.1 guidance to implement a PPOA process to periodically evaluate new and existing activities for continuous improvement ideas and cost benefit analyses related to WMP2.

Other activities that may be incorporated and reported under this program are site-specific waste-avoidance efforts, such as treating by container (as permissible under pertinent regulations), reprocessing waste as scrap metal and recycling concrete and asphalt.

Once the WMP2 opportunities that are technically and economically feasible are identified and approved by senior management and DOE-LM, they will be implemented. It may be necessary to develop new procedures or modify existing procedures to ensure that WMP2 measures are effectively executed.

In addition to the requirements outlined in the *Environmental Protection Manual*, the following laws are pertinent to DOE-LM's WMP2 Program:

Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901 et seq.): This law regulates the ongoing generation, treatment, storage, transportation, and disposal of solid waste, which includes hazardous waste. One purpose of RCRA is to prevent the creation of new abandoned hazardous waste sites (e.g., Superfund sites). RCRA also promotes waste minimization and resource recovery by encouraging the reduction of hazardous waste at the source and the recycling of hazardous waste in an environmentally sound manner.

Pollution Prevention Act of 1990, as amended (42 U.S.C. 13101 et seq.): This law expanded the nation's waste prevention policy beyond the RCRA framework to address minimizing or eliminating toxic releases to all environmental media and natural resources.

5.3 Responsibilities

DOE-LM and contractor senior management, employees, and subcontractors are responsible for conducting all activities in compliance with federal, state, tribal, and local environmental laws, regulations, executive orders, DOE orders, and guidance.

Project managers and project planning staff are responsible for contacting EC at the conceptual-design phase of project planning—whether a new action is being planned, or the scope or implementation strategy of an existing action is being changed—to ensure that every opportunity to recycle/reuse materials and minimize the generation of solid and hazardous waste is realized.

The EMS Core Team is responsible for communicating objectives and targets (and the means for achieving them) to others in the organization.

EMS WMP2 team responsibilities include facilitating employee awareness of the program; staying current on trends, successes, and lessons learned in business and government; having knowledge of sources of pertinent information (e.g., websites); developing and recommending program goals to the EMS Core Team; helping to implement program goals; developing and implementing program metrics; overseeing the collection and reporting of program data; and interfacing with other EMS staff. In addition, the WMP2 team establishes metrics to achieve the objectives and develops appropriate measures to track progress toward meeting the target metrics.

EC is responsible for ensuring compliance with RCRA solid- and hazardous-waste regulations, from minimizing waste, to storing and managing it, to disposing of it off site. EC is also responsible for implementing a PPOA process periodically to assess WMP2 source reduction and hazardous waste practices within existing operations and identify opportunities for improvement.

5.4 Procedure

The WMP2 Program is implemented according to the following actions.

The volume of solid waste generated and recycled at DOE-LM sites is tracked by obtaining information from:

- Contractor solid waste subcontractors,
- Facility recycling subcontractors, and
- Spreadsheets that track the recycling of waste.

This information is used to establish the percent reduction metric required under DOE Order 450.1.

The purchases of hazardous chemicals—and chemicals that are less toxic and more environmentally friendly—are tracked through the mechanisms established by the EPP Program procurement system. Additionally, the system for tracking hazardous chemical inventories will be expanded to accommodate information necessary to calculate the percent reduction metric required under the orders.

The WMP2 team will develop and implement a PPOA process for evaluating new and existing activities as input to continuous-improvement and cost-benefit-analysis programs.

Site leads, line managers, designated EC staff, and other pertinent project staff, such as site workers, must discuss and identify potential WMP2 opportunities during project or activity planning.

Site staff will measure and document waste generation, waste minimization, and pollution prevention activities and report these to the pertinent EMS WMP2 team member or designated EC staff.

The EMS WMP2 team or designated EC staff will compile site WMP2 information and prepare reports, such as the Quarterly Performance Assurance Report and DOE's *Annual Report on Waste Generation and Pollution Prevention Progress* (DOE undated).

The following procedures describe the process for integrating WMP2 into the DOE-LM EMS. Further guidance for achieving the WMP2 requirements are set forth in DOE Order 450.1 and in DOE Guide 450.1-5, *Implementation Guide for Integrating Pollution Prevention into Environmental Management Systems*.

5.4.1 Planning

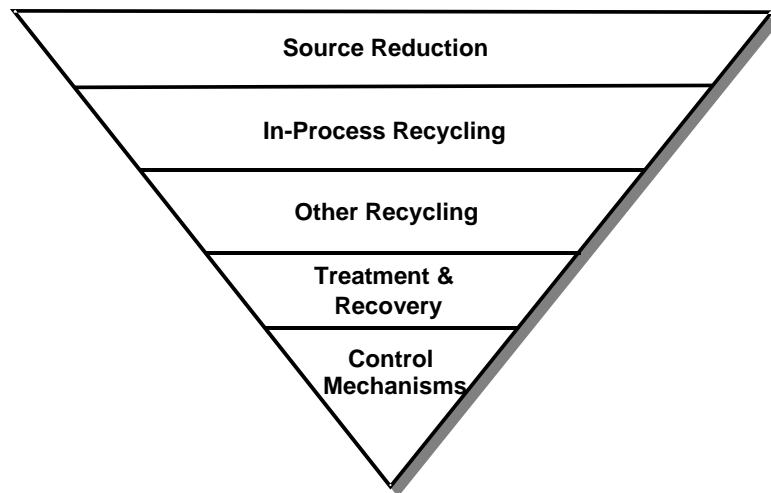
Effective WMP2 planning requires that pollution prevention assessments be included at the beginning of the work planning process for new projects. Project activities with significant environmental impacts are identified, and WMP2 goals are established during project planning.

Planned and ongoing pollution prevention assessments (the identification of waste streams, volume, and cost) is done by continually evaluating project processes and operations to better understand the environmental impacts and to identify opportunities to use environmentally sustainable goods and services more efficiently, to prevent pollution, to minimize waste generation, and to manage and dispose of waste in compliance with applicable regulations.

The Prevention of Pollution Hierarchy figure 5-1 is intended to be used when determining how to handle waste that is created within a project or during a process. These activities should be planned as follows:

1. Determine if the waste can be reduced or even prevented through source reduction.
2. If this is not feasible, determine if reusing the waste is an option (in process recycling).
3. Perhaps the material can be used in another project (other recycling).
4. If this is not possible, determine if the waste can be treated in a way that would reduce its environmental impact.
5. When all else has been considered and determined impractical, have the waste disposed.

Figure 5-1 Prevention of Pollution Hierarchy



5.4.2 Metrics

Defining program goals and planning the basic elements of the system, including staff and resources needed, are critical to the success of the overall measurement system for WMP2 activities. Goals defined by the orders include the following:

- DOE-LM and the contractor will recycle 35 percent of all solid waste for the first year, after which the contractor will strive for continual improvement. DOE-LM will develop

either site-specific or programmatic annual goals to ensure the program's continual improvement.

- DOE-LM and the contractor will establish goals for purchasing less toxic chemicals and reusing existing inventories of hazardous chemicals.

Progress toward the objectives and targets is reviewed on a regular basis at management meetings. The EMS WMP2 team reports to contractor management quarterly on progress toward meeting the objectives and goals. Progress is also communicated to employees via bulletin boards and similar means.

As a result of reviewing existing WMP2 practices, these practices may be modified to improve their effectiveness. The review process may also result in resetting or reprioritizing existing WMP2 goals or establishing new WMP2 goals by the EMS Core Team.

An active program for prompt, corrective action of any nonconformance with legal requirements and other EMS requirements is in place and is managed through the contractor's Corrective Action Tracking System.

Documented management reviews of performance against the established target metrics and the effectiveness of the WMP2 in meeting commitments is performed annually and reported to DOE-LM and senior contractor management to solicit input for continual improvement.

5.5 Reporting Requirements

EMS status is provided to DOE-LM and the contractor in the quarterly performance reports. These reports include information on progress against established goals. The reports are located on the contractor's website. Annual pollution prevention and EPP reports are provided electronically to DOE-Headquarters (HQ) after DOE-LM's review and approval. A WMP2 newsletter is provided monthly to publicize information about recycling and the status of current activities.

5.6 Training

EC personnel whose jobs involve WMP2 will have a professional knowledge of compliance regulations (e.g., RCRA hazardous waste regulations and the U.S. Department of Transportation's hazardous materials regulations).

Procurement and engineering personnel will receive training necessary to understand the importance of sustainable purchasing, recycling and reuse as applicable to their work.

Personnel involved in day-to-day operations will receive initial awareness training, as well as necessary refresher and job-specific training to help implement and improve the WMP2 Program.

5.7 Records

Records associated with the WMP2 Program and its associated activities are maintained in records files for the sites, projects, and programs to which the pertinent activities apply. Such records are managed in accordance with the requirements of the *Records Management Manual*.

The following documents are considered records:

- Hard-copy purchasing documentation
- Recycling information
- PPOAs

6.0 Sustainable Buildings—EMS Program #6

The Sustainable Buildings Program promotes the conservation of natural resources, energy efficiency, waste minimization, and the creation of healthy, productive work environments as part of the cost-effective construction and improvement of new and existing DOE-LM-owned and leased buildings.

6.1 Purpose

This program plan develops a process to ensure that building designs reduce negative environmental impacts, reduce energy and water use, use recycled content materials, and improve the health and comfort of building occupants in accordance with the sustainable buildings requirements in EO 13423, DOE Order 430.2B; and DOE Order 450.1; and in the spirit of the TEAM Initiative (DOE 2007b).

This plan adheres to the Integrated Safety Management System concept of promoting continuous improvement through the “Plan-Do-Check-Act” approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

6.2 Scope

The EO 13423 goals for sustainable buildings (also known as “green” buildings) are to ensure that (1) any new construction and major renovation of agency buildings comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings set forth in the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU 2006), and (2) 15 percent of the existing federal capital asset building inventory of the agency as of the end of FY 2015 incorporates the sustainable practices provided in the Guiding Principles (see Appendix 6A).

DOE Order 430.2B requires that, to the greatest extent practicable, leased facilities will include a preference for buildings that have attained U.S. Green Building Council (USGBC) Leadership for Environmental and Energy Design (LEED) “gold” certification with emphasis on energy efficiency, water efficiency, and use of renewable energy in the selection criteria for acquiring leased buildings. If a LEED “gold”-certified building is unavailable for lease, as an alternative select buildings that have the Energy Star[®] (EPA 2008a) building label. When entering into renegotiation or extension of existing leases, DOE-LM will include lease provisions that support the Guiding Principles (see Appendix 6A). All build-to-suit lease solicitations will incorporate criteria for sustainable design and development, energy efficiency, and verification of building performance in accordance with the LEED “gold” requirements.

The Sustainable Buildings Program, an integral part of the DOE-LM EMS, will be implemented in accordance with DOE Order 450.1 and as approved by DOE-LM and contractor management.

6.3 Responsibilities

DOE-LM and contractor senior management are responsible for approval of sustainable buildings performance goals and objectives, review of proposals for sustainable buildings

initiatives and plans to meet the goals and objectives, and approval of and concurrence in proposals and expenditures in accordance with contractor procedures.

Project management is responsible for ensuring that approved, budgeted resources are available and that programmatic and technical direction is promulgated in a timely manner to implement the Sustainable Buildings Program.

Project managers are responsible for considering sustainable buildings practices in carrying out assigned work, including performing sustainable buildings feasibility evaluations in accordance with this program. In addition, project managers are responsible for ensuring that staff and equipment are assigned in a timely manner to comply with senior management programmatic and technical direction and budget to implement the sustainable building improvements. This includes responsibility for providing information about life-cycle costs for buildings and construction under their purview for use in the program metrics.

Site leads and line managers are responsible for contacting the EC lead or site EC point of contact, as appropriate, at the conceptual design phase of project planning, whether planning a new action or changing the scope or implementation strategy of an existing action. In addition, project managers and project planning staff are responsible for contacting the EC lead or site EC point of contact, as appropriate, at the planning phase of leasing a facility or when facility leases are coming up for renewal.

Sustainable Buildings team members are responsible for knowing program requirements (e.g., executive orders, federal statutes, DOE-LM directives); facilitating employee awareness of the program; having a basic understanding of relevant technology; staying current on trends, successes, and lessons learned in business and government; having knowledge of information resources (e.g., websites); developing and recommending program goals to the EMS Core Team; helping to implement goals; helping to develop and implement metrics; providing oversight of data collection and reporting; and interfacing with other EMS staff. In addition, the Sustainable Buildings team members are responsible for developing knowledge, skills, and abilities to provide programmatic and technical information necessary to achieve the scope of the program, to promote and champion the program, and to facilitate program implementation.

The EMS Core Team and program teams will propose site-specific or programmatic goals that are developed in accordance with the EMS Description, aligned with the applicable orders and guidance, and approved by contractor senior management and DOE-LM.

All employees are responsible for performing tasks within the scope of duties assigned by site leads and line managers and commensurate with their level of expertise and authority to implement the Sustainable Buildings Program. In addition, all employees are responsible for completing awareness-level training about the Sustainable Buildings Program in a timely manner and on a frequency determined by contractor management. DOE-LM, contractor management, employees, and subcontractors are responsible for conducting all activities in compliance with federal, state, tribal and local environmental laws, regulations, executive orders, DOE orders and guidance.

6.4 Procedure

The Sustainable Buildings Program will be implemented according to the actions described in Sections 6.4.1 through 6.4.5.

6.4.1 Establish Project Team

Establish a project team that will perform the subsequent actions. The project team may be either the Sustainable Buildings team or an appointed team consisting of knowledgeable staff (e.g., facility manager, construction manager, site manager, Sustainable Buildings team member, and someone knowledgeable in the LEED process).

6.4.2 Initial Screening

Existing Buildings and Facilities

Perform an initial screening for each DOE-LM–owned and contractor-operated capital asset building and facility, including newly transitioned sites. The initial screening will determine if the building or facility meets the definition of a capital asset and will establish building/facility characteristics (e.g., the total net square footage of the building, occupancy status, types of utilities, and the age of the building). The screening will also determine planned building disposition and document life-cycle costs, if available. The initial screening will be conducted using one of the tables identified in PNNL-15217, *Building Cost and Performance Metrics: Data Collection Protocol*, Revision 1.1 (PNNL 2005), or a printout from the Facilities Information Management System (FIMS 2008) database. The results of the initial screening will be used to eliminate buildings and facilities from further consideration.

Leased Buildings and Facilities

Perform an initial screening for each DOE-LM–leased and contractor-operated building and facility to determine the number and location of leased buildings and facilities and when their leases expire. Use the FIMS database as a source of information.

New Construction and Major Renovations

Conduct a review to identify FY 2010 and out years line item construction projects with acquisition costs greater than \$5 million and construction/renovation projects with acquisition costs up to \$5 million (total estimated cost). Use the FIMS database as a source of information.

6.4.3 Secondary Screening

Existing Buildings and Facilities

Perform a secondary screening for each DOE-LM–owned and contractor-operated capital asset building and facility, including newly transitioned sites, to determine what sustainable features are present that meet the Guiding Principles identified in the High Performance and Sustainable Buildings Memorandum of Understanding (MOU 2006). Perform the secondary screening using the USGBC LEED for Existing Buildings: Operations and Maintenance Checklist (USGBC 2008a) or similar checklist approved by DOE-LM (see Appendix 6B).

Leased Buildings and Facilities

Perform a secondary screening for each DOE-LM–leased and contractor-operated building and facility to determine what sustainable features are present that meet the Guiding Principles

identified in the High Performance and Sustainable Buildings Memorandum of Understanding (MOU 2006). Perform the secondary screening using the USGBC LEED for Existing Buildings: Operations and Maintenance Checklist (USGBC 2008a) or similar checklist approved by DOE-LM.

New Construction and Major Renovations

Conduct a review to determine what sustainable features are in the current project plans that meet the Guiding Principles identified in the High Performance and Sustainable Buildings Memorandum of Understanding (MOU 2006). Perform the review using the USGBC LEED New Construction Checklist (USGBC 2008b) or similar checklist approved by DOE-LM.

6.4.4 Evaluation

Existing Buildings and Facilities

Evaluate the results of the secondary screening and select one or more target buildings/facilities to designate 15 percent (by square feet) of the existing federal capital asset building inventory that by the end of FY 2015 could incorporate the sustainable practices identified in the Guiding Principles. Evaluate the implementation of sustainable buildings practices in the target buildings/facilities. Identify methods to reduce life-cycle costs of the environmental and energy attributes of the buildings/facilities.

Leased Buildings and Facilities

Evaluate the results of the secondary screening and develop contract language to incorporate the sustainable practices identified in the Guiding Principles when leases are renewed, if feasible.

New Construction and Major Renovations

Evaluate the results of the review to determine if the project plans incorporate the Guiding Principles and meet minimum LEED “gold” certification to the maximum extent practicable as defined by life-cycle assessment and pursuant to Office of Management and Budget Circular A-11, Part 7, Section 300 criteria (OMB 2007).

6.4.5 Recommendations

Existing Buildings and Facilities

Make recommendations to DOE-LM for approval to implement methods to reduce life-cycle costs of the environmental and energy attributes of the buildings and facilities.

Leased Buildings and Facilities

Make recommendations to DOE-LM for approval to insert contract language to incorporate the sustainable practices identified in the Guiding Principles when leases are renewed.

New Construction and Major Renovations

Make recommendations to DOE-LM for approval for each new construction or major acquisition greater than \$5 million (total estimated cost) planned for FY 2010 and beyond to ensure that they incorporate Guiding Principles and meet minimum LEED “gold” certification to the maximum extent practicable as defined by life-cycle assessment and pursuant to Office of Management and Budget Circular A-11, Part 7, Section 300 criteria (OMB 2007).

6.5 Program Metrics

A baseline of existing DOE-LM capital asset buildings and facilities operated by the contractor is established by using the FIMS database. The baseline is reviewed annually and updated as necessary.

The DOE-LM capital asset baseline is used as a basis of comparison for determining the extent to which the Guiding Principles may be applied to existing buildings and to make recommendations to management. The comparison is performed using the USGBC LEED for Existing Buildings: Operations and Maintenance Checklist (USGBC 2008a) or similar checklist approved by DOE-LM. Adjustments to the baseline data in out years may be warranted under certain circumstances (e.g., addition of a large building). All adjustments are documented.

6.6 Reporting Requirements

EO 13423 requires DOE-LM to incorporate the Guiding Principles for High Performance Sustainable Buildings to ensure that at least 15 percent of its capital asset building inventory (by square feet) complies with the Guiding Principles by the end of FY 2015. DOE-LM and the contractor track DOE-LM progress in meeting this goal by using the USGBC LEED for Existing Buildings: Operations, and Maintenance Checklist (USGBC 2008a) as a means to track building performance. The Sustainable Buildings team reports to contractor management quarterly on progress toward meeting the EO 13423 goals. Reports are located on the contractor website.

The Sustainable Buildings team provides information on their progress toward meeting the EO 13423 goals as requested by DOE-LM, and at least annually in support of DOE-LM annual reporting requirements.

6.7 Training

All employees are required to have awareness-level training as well as necessary refresher training regarding the EO 13423 Sustainable Buildings Program goals, the purpose and scope of the Sustainable Buildings Program, the Guiding Principles, and planned implementation of the program. Employees whose actions are affected by this aspect of EO 13423 receive on-the-job or job-specific training on goals and any related instructions.

Sustainable Buildings Program team members will be trained through work experience, formal or on-the-job training and education, and refresher training to perform their responsibilities.

Training plans are developed in consultation with the contractor Training staff to identify training needs, sources of training, and the reasonable time for completion.

6.8 Records

Records associated with the Sustainable Buildings Program are maintained in an identifiable records system, in addition to any records that are maintained in the record files for individual sites, programs, and projects for which the Sustainable Buildings Program is implemented. Records are managed in accordance with the requirements of the *Records Management Manual*.

The following records will be maintained:

- Quarterly performance report
- Training records—administrative control record
- Decision documents (e.g., list of capital asset buildings and the life-cycle costs, checklists)
- Design documents

Appendix 6A

EPA Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings

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EPA Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings

The *EPA Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings*, recently adopted by over 18 federal agencies, including the U.S. Environmental Protection Agency (EPA), provide a good model. The Guiding Principles call for integrated design, energy performance, water conservation, indoor environmental quality, and materials aimed at helping federal agencies and organizations:

- Reduce the total ownership cost of facilities;
- Improve energy efficiency and water conservation;
- Provide safe, healthy, and productive built environments; and,
- Promote sustainable environmental stewardship.

I. Employ Integrated Design Principles

Integrated Design—Use a collaborative, integrated planning and design process that:

- Initiates and maintains an integrated project team in all stages of a projects planning and delivery;
- Establishes performance goals for siting, energy, water, materials, and indoor environmental quality along with other comprehensive design goals; and, ensures incorporation of these goals throughout the design and lifecycle of the building; and,
- Considers all stages of the buildings lifecycle, including deconstruction.

Commissioning—Employ total building commissioning practices tailored to the size and complexity of the building and its system components in order to verify performance of building components and systems and help ensure that design requirements are met. This should include a designated commissioning authority, inclusion of commissioning requirements in construction documents, a commissioning plan, verification of the installation and performance of systems to be commissioned, and a commissioning report.

II. Optimize Energy Performance

Energy Efficiency—Establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the Energy Star targets for new construction and major renovation where applicable. For new construction, reduce the energy cost budget by 30 percent compared to the baseline building performance rating per the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., and the Illuminating Engineering Society of North America (IESNA) Standard 90.1-2004, Energy Standard for Buildings except Low-Rise Residential. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline.

Measurement and Verification—In accordance with DOE guidelines issued under Section 103 of the Energy Policy Act of 2005 (EPACT), install building level utility meters in new major construction and renovation projects to track and continuously optimize performance. Compare actual performance data from the first year of operation with the energy design target. After one

year of occupancy, measure all new major installations using the Energy Star Benchmarking Tool for building and space types covered by Energy Star. Enter data and lessons learned from sustainable buildings into the High Performance Buildings Database (DOE 2008b) (www.eere.energy.gov/femp/highperformance/index.cfm).

III. Protect and Conserve Water

Indoor Water—Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 fixture performance requirements.

Outdoor Water—Use water efficient landscape and irrigation strategies, including water reuse and recycling, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). Employ design and construction strategies that reduce storm water runoff and polluted site water runoff.

IV. Enhance Indoor Environmental Quality

Ventilation and Thermal Comfort—Meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality.

Moisture Control—Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage and mold contamination.

Daylighting—Achieve a minimum of daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks. Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.

Low-Emitting Materials—Specify materials and products with low pollutant emissions, including adhesives, sealants, paints, carpet systems, and furnishings.

Protect Indoor Air Quality during Construction—Follow the recommended approach of the Sheet Metal and Air Conditioning contractors National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 1995. After construction and prior to occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60 percent. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.

V. Reduce Environmental Impact of Materials

Recycled Content—For EPA-designated products, use products meeting or exceeding EPA's recycled content recommendations. For other products, use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.

Biobased Content—For USDA [U.S. Department of Agriculture]-designated products, use products meeting or exceeding USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.

Construction Waste—During a project's planning stage, identify local recycling and salvage operations that could process site related waste. Program the design to recycle or salvage at least 50 percent construction, demolition and land clearing waste, excluding soil, where markets or on-site recycling opportunities exist.

Ozone Depleting Compounds—Eliminate the use of ozone depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account life cycle impacts.

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Appendix 6B

USGBC LEED for Existing Buildings: Operations and Maintenance Checklist

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LEED for Existing Buildings: Operations & Maintenance Registered Project Checklist

Project Name: _____

Project Address: _____

Yes	?	No		
			Project Totals (Pre-Certification Estimates)	
			92 Points	
			Certified: 34-42 points	Silver: 43-50 points Gold: 51-67 points Platinum: 68-92 points

Yes	?	No		
			Sustainable Sites	
			12 Points	
			Credit 1	LEED Certified Design and Construction 1
			Credit 2	Building Exterior and Hardscape Management Plan 1
			Credit 3	Integrated Pest Mgmt, Erosion Control, and Landscape Mgmt Plan 1
			Credit 4	Alternative Commuting Transportation 1 to 4
			Credit 4.1	10% Reduction 1
			Credit 4.2	25% Reduction 2
			Credit 4.3	50% Reduction 3
			Credit 4.4	75% Reduction or greater 4
			Credit 5	Reduced Site Disturbance , Protect or Restore Open Space 1
			Credit 6	Stormwater Management 1
			Credit 7.1	Heat Island Reduction , Non-Roof 1
			Credit 7.2	Heat Island Reduction , Roof 1
			Credit 8	Light Pollution Reduction 1



LEED for Existing Buildings: Operations & Maintenance Registered Project Checklist

Yes	?	No			
			Water Efficiency		10 Points
Yes			Prereq 1	Minimum Indoor Plumbing Fixture & Fitting Efficiency	Required
			Credit 1.1	Water Performance Measurement , Whole Building Metering	1
			Credit 1.2	Water Performance Measurement , Submetering	1
			Credit 2	Additional Indoor Plumbing Fixture and Fitting Efficiency	1 to 3
			Credit 2.1	10% Reduction	1
			Credit 2.2	20% Reduction	2
			Credit 2.3	30% Reduction	3
			Credit 3	Water Efficient Landscaping	1 to 3
			Credit 3.1	50% Reduction	1
			Credit 3.2	75% Reduction	2
			Credit 3.3	100% Reduction	3
			Credit 4.1	Cooling Tower Water Mgmt , Chemical Management	1
			Credit 4.2	Cooling Tower Water Mgmt , Non-Potable Water Source Use	1

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LEED for Existing Buildings: Operations & Maintenance Registered Project Checklist

Yes	?	No			
			Energy & Atmosphere 30 Points		
Yes			Prereq 1	Energy Efficiency Best Management Practices	Required
Yes			Prereq 1	Minimum Energy Efficiency Performance	Required
Yes			Prereq 1	Refrigerant Management, Ozone Protection	Required
<p>*NOTE for EA1: All LEED for Existing Building projects registered after June 26th, 2007 are required to achieve at least two (2) points under EA1.</p>					
			Credit 1	Optimize Energy Efficiency Performance	1 to 15
				ENERGY STAR Rating: 65 / Alternative Score: 15% Above Nat'l Average	Required
			Credit 1.1	ENERGY STAR 67 / Alternative Score: 17% Above Average	1
			Credit 1.2	ENERGY STAR 69 / Alternative Score: 19% Above Average	2
			Credit 1.3	ENERGY STAR 71 / Alternative Score: 21% Above Average	3
			Credit 1.4	ENERGY STAR 73 / Alternative Score: 23% Above Average	4
			Credit 1.5	ENERGY STAR 75 / Alternative Score: 25% Above Average	5
			Credit 1.6	ENERGY STAR 77 / Alternative Score: 27% Above Average	6
			Credit 1.7	ENERGY STAR 79 / Alternative Score: 29% Above Average	7
			Credit 1.8	ENERGY STAR 81 / Alternative Score: 31% Above Average	8
			Credit 1.9	ENERGY STAR 83 / Alternative Score: 33% Above Average	9
			Credit 1.10	ENERGY STAR 85 / Alternative Score: 35% Above Average	10
			Credit 1.11	ENERGY STAR 87 / Alternative Score: 37% Above Average	11
			Credit 1.12	ENERGY STAR 89 / Alternative Score: 39% Above Average	12
			Credit 1.13	ENERGY STAR 91 / Alternative Score: 41% Above Average	13
			Credit 1.14	ENERGY STAR 93 / Alternative Score: 43% Above Average	14
			Credit 1.15	ENERGY STAR 95+ / Alternative Score: 45%+ Above Average	15

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LEED for Existing Buildings: Operations & Maintenance Registered Project Checklist

			Energy & Atmosphere, continued		
			Existing Building Commissioning		
			Credit 2.1	Investigation and Analysis	2
			Credit 2.2	Implementation	2
			Credit 2.3	Ongoing Commissioning	2
			Performance Measurement		
			Credit 3.1	Building Automation System	1
			Credit 3.2-3.3	System Level Metering	1 to 2
			Credit 3.2	40% Metered	1
			Credit 3.3	80% Metered	2
			Other		
			Credit 4	Renewable Energy	1 to 4
			Credit 4.1	On-site 3% / Off-site 25%	1
			Credit 4.2	On-site 6% / Off-site 50%	2
			Credit 4.3	On-site 9% / Off-site 75%	3
			Credit 4.4	On-site 12% / Off-site 100%	4
			Credit 5	Refrigerant Management	1
			Credit 6	Emissions Reduction Reporting	1

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LEED for Existing Buildings: Operations & Maintenance Registered Project Checklist

Yes	?	No			
			Materials & Resources 14 Points		
Yes			Prereq 1	Sustainable Purchasing Policy	Required
Yes			Prereq 2	Solid Waste Management Policy	Required
			Sustainable Purchasing		
			Credit 1	Ongoing Consumables	1 to 3
			Credit 1.1	40% of Purchases	1
			Credit 1.2	60% of Purchases	2
			Credit 1.3	80% of Purchases	3
			Credit 2.1	Durable Goods, Electric	1
			Credit 2.2	Durable Goods, Furniture	1
			Credit 3	Facility Alterations and Additions	1
			Credit 4	Reduced Mercury in Lamps	1 to 2
			Credit 4.1	90 pg/lum-hr	1
			Credit 4.2	70 pg/lum-hr	2
			Credit 5	Food	1
			Solid Waste Management		
			Credit 6	Waste Stream Audit	1
			Credit 7	Ongoing Consumables	1 to 2
			Credit 7.1	50% Waste Diversion	1
			Credit 7.2	70% Waste Diversion	2
			Credit 8	Durable Goods	1
			Credit 9	Facility Alterations and Additions	1

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LEED for Existing Buildings: Operations & Maintenance Registered Project Checklist

Yes	?	No			
			Indoor Environmental Quality 19 Points		
Yes			Prereq 1	Outdoor Air Introduction and Exhaust Systems	Required
Yes			Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
Yes			Prereq 3	Green Cleaning Policy	Required
			IAQ Best Management Practices		
			Credit 1.1	IAQ Management Program	1
			Credit 1.2	Outdoor Air Delivery Monitoring	1
			Credit 1.3	Increased Ventilation	1
			Credit 1.4	Reduce Particulates in Air Distribution	1
			Credit 1.5	Facility Alterations and Additions	1
			Occupant Comfort		
			Credit 2.1	Occupant Survey	1
			Credit 2.2	Occupant Controlled Lighting	1
			Credit 2.3	Thermal Comfort Monitoring	1
			Credit 2.4-2.5	Daylight and Views	1 to 2
			Credit 2.4	50% Daylight / 45% Views	1
			Credit 2.5	75% Daylight / 90% Views	2
			Green Cleaning		
			Credit 3.1	High Performance Cleaning Program	1
			Credit 3.2-3.3	Custodial Effectiveness Assessment	1 to 2
			Credit 3.2	Score of ≤ 3	1
			Credit 3.3	Score of ≤ 2	2
			Credit 3.4 -3.6	Sustainable Cleaning Products and Materials	1 to 3
			Credit 3.4	30% of Purchases	1
			Credit 3.5	60% of Purchases	2
			Credit 3.6	90% of Purchases	3
			Credit 3.7	Sustainable Cleaning Equipment	1
			Credit 3.8	Entryway Systems	1
			Credit 3.9	Indoor Integrated Pest Management	1



LEED for Existing Buildings: Operations & Maintenance Registered Project Checklist

Yes	?	No		
			Innovation in Operations	7 Points
			Credit 1.1 Innovation in Operations: Provide Specific Title	1
			Credit 1.2 Innovation in Operations: Provide Specific Title	1
			Credit 1.3 Innovation in Operations: Provide Specific Title	1
			Credit 1.4 Innovation in Operations: Provide Specific Title	1
			Credit 2 LEED® Accredited Professional	1
			Credit 3 Documenting Sustainable Building Cost Impacts	2

7.0 Vehicle and Fuel Use—EMS Program #7

The DOE-LM and contractor Vehicle and Fuel Use Program is established to conserve finite natural resources by reducing the use of petroleum fuel, increasing the use of alternative renewable fuel, and using alternative fuel and hybrid vehicles when available.

7.1 Purpose

In addition to promoting fuel conservation and the use of renewable resources, the Vehicle and Fuel Use Program plan provides the implementation steps needed to incorporate the requirements for alternative vehicles and biofuels defined in EO 13423, DOE Order 450.1, and DOE Order 430.2B.

This plan adheres to the Integrated Safety Management System concept of promoting continuous improvement through the “Plan-Do-Check-Act” approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

7.2 Scope

EO 13423 goals for vehicle and fuel use are as follows:

- Increase the purchase of alternative-fuel, hybrid, and plug-in hybrid vehicles when commercially available.
- Reduce petroleum consumption in fleet vehicles by 2 percent annually through 2015.
- Increase the consumption of alternative fuel by at least 10 percent annually.

Factors that have to be considered in the course of attaining these goals are the addition of sites to the DOE-LM system, the availability of alternative fuel, and the type of vehicle required for DOE-LM work (which often includes fieldwork).

To achieve the petroleum reduction goals of EO 13423, each site will strive to:

- Use trip consolidation practices, mass transportation, agency shuttles, videoconferencing, and other methods to reduce vehicle miles traveled.
- Increase the fuel economy of the fleet overall by acquiring vehicles with higher fuel economy (e.g., more fuel-efficient engines, smaller vehicles, hybrid-electric vehicles, alternative-fuel vehicles).
- Employ the most fuel-efficient vehicles for required tasks and ensure that the fleet contains the appropriate number of vehicles relative to need.
- Closely monitor utilization standards, and terminate vehicles not adequately utilized. Prior to termination, vehicles will be reviewed, and if their fuel type or efficiency is more desirable at other sites, they will be transferred there; the less-efficient vehicles will be terminated.
- Employ efficiency strategies, such as using low-rolling-resistance tires, synthetic oil, and other technologies.

- Increase the use of alternative fuels (i.e., non-petroleum-based fuels) as additional fueling stations become available.

7.3 Responsibilities

DOE-LM and senior contractor management are responsible for approving vehicle and fuel use goals and objectives, reviewing proposals for vehicle and fuel use initiatives and plans to meet the program goals and objectives, and approving of and agreeing on proposals and expenditures in accordance with contractor procedures.

Contractor management is responsible for ensuring that approved, budgeted resources are available and that programmatic and technical direction is promulgated in a timely manner to implement the Vehicle and Fuel Use Program.

Site leads and line managers are responsible for considering vehicle and fuel use when assigned work is carried out. This includes responsibility to perform vehicle and fuel use feasibility evaluations in accordance with this program. Site leads and line managers are also responsible for ensuring that staff and equipment are assigned in a timely manner, in compliance with management's programmatic and technical direction, to implement the Vehicle and Fuel Use Program. This includes gathering information about vehicles and fuel use for activities under their purview so that it can be used in the program metrics.

Vehicle and Fuel Use Program team members (assigned in accordance with contractor policies and procedures) are responsible for developing the knowledge, skills, and abilities to provide programmatic and technical information necessary to achieve the scope of the program, to promote and champion the program, to help all employees become aware of the program, and to facilitate program implementation. The team is also responsible for developing and recommending program goals.

The EMS Core Team and program teams are responsible for site-specific or programmatic goals that are developed in accordance with the EMS Description, aligned with applicable orders and guidance, and approved by senior management and DOE-LM.

All employees are responsible for performing tasks within their scope of duties and commensurate with their level of expertise and authority to implement the Vehicle and Fuel Use Program. All employees are also responsible for completing awareness-level training about the Vehicle and Fuel Use Program in a timely manner and on a frequency determined by contractor management.

7.4 Procedure

The Vehicle and Fuel Use Program team maintains a list of vehicles in the entire DOE-LM fleet. The list includes descriptions of the vehicles, the types of vehicles, vehicles fuel types, and similar information.

To achieve compliance with the program goals, the program team will establish a base period for comparison, then monitor the monthly fuel consumption by vehicle and fuel type and take appropriate actions necessary to meet program goals for vehicle and fuel use.

All vehicles currently in or acquired for the DOE-LM fleet that are capable of using E85 fuel will use this alternative fuel to the maximum extent practicable.

Each site with alternative-fuel vehicles will utilize the DOE's Web-based Alternative Fueling Station Locator to identify stations within a 5-mile radius that provide the appropriate fuel. Where no stations exist, site management will investigate possible solutions through private-sector alternative-fuel distributors, including existing fuel vendors and stations.

The General Services Administration (GSA) determines replacement of GSA-leased vehicles based on vehicles' age and mileage. When it is time to replace a vehicle, GSA notifies pertinent fleet management (in this case, the DOE-LM contractor). The DOE-LM contractor tells GSA what type of vehicle is required, using the following considerations:

- The availability of alternative-fuel, dual-fuel, or hybrid vehicles meeting the job or usage requirements.
- The availability of the appropriate fuel in the areas in which the vehicle will typically operate.

7.5 Program Metrics

The DOE-LM fleet currently has 43 vehicles and consists of medium- and light-duty pickups, SUVs, and sedans. Four-wheel-drive pickups and SUVs are the vehicles of preference, necessitated by remote, rough country and job requirements. This vehicle inventory and how each vehicle is used (days used, miles driven, and quantity of fuel purchased) are tracked using GSA's standard tracking system, which includes fuel purchases using GSA-authorized credit cards.

GSA's existing vehicle tracking system will be modified if necessary and used to track fuel use by fuel type and vehicle type. The metrics will be placed in a spreadsheet so that monthly and year-to-date data can be tracked and sorted for easy comparisons to previous months or years.

DOE-LM will have internal policies that require the accurate tracking of vehicle acquisitions and inventory, mileage, fuel consumption by fuel type, and other relevant data.

DOE-LM and GSA will work together to update and maintain the Federal Automotive Statistical Tool (FAST) (GSA 2008) to reflect the goals of EO 13423. FAST is a Web-based program developed to measure how federal agencies comply with the DOE requirements pertaining to vehicle and fuel use reduction.

7.6 Reporting Requirements

A monthly report about each DOE-LM vehicle's use (days used, miles driven, and quantity of fuel purchased) is provided to GSA. Fuel purchases are reported using credit card receipts.

DOE-LM is required to provide annual vehicle use data, including the type and quantity of fuel used, to DOE-HQ no later than December 31 of each year. DOE-HQ specifies the reporting format and collection methods for data to be submitted.

The Vehicle and Fuel Use Program team reports to contractor management quarterly regarding progress toward meeting program goals.

7.7 Training

All employees will receive awareness-level training as well as necessary refresher training regarding the EO 13423 vehicle and fuel use goals, the purpose and scope of the program, the environmental impacts of employees' actions with respect to vehicle and fuel use.

7.8 Records

Vehicle and Fuel Use Program records (e.g., program metrics, fuel use) will be maintained in an identifiable records system, in addition to any records that are maintained in the record files for individual sites, programs, and projects for which the Vehicle and Fuel Use Program was implemented. Records are managed in accordance with the requirements of the *Records Management Manual*.

8.0 Electronic Stewardship Program—EMS Program #8

The purpose of the Electronic Stewardship Program is to foster the use of beneficial environmental practices during the entire life cycle of electronic equipment used to support the DOE-LM mission. Through such practices, DOE-LM and the contractor can conserve energy and finite natural resources, and reduce costs and pollution.

8.1 Purpose

This program plan provides a systematic process for considering positive environmental attributes (such as energy efficiency, lower-toxicity materials, maximum product life, and waste minimization) during electronic equipment's life cycle, including its purchase, use, and disposition. The successful execution of this plan enables DOE-LM and the contractor to implement the electronic stewardship requirements and goals specified in EO 13423 and DOE Order 450.1.

This plan adheres to the Integrated Safety Management System concept of promoting continuous improvement through the "Plan-Do-Check-Act" approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

8.2 Scope

The Electronic Stewardship Program operates as part of the DOE-LM EMS. The program applies to electronic equipment used in support of DOE-LM and contractor activities, such as computers, printers, copiers, and fax machines.

The Electronic Stewardship Program implements the electronic stewardship requirements and goals specified in EO 13423, DOE Order 450.1, and associated documents, such as the *Instructions for Implementing Executive Order 13423* (CEQ 2007), to the extent technically and economically feasible and as approved by DOE-LM and contractor management.

Electronic stewardship is applicable during the three phases of electronic equipment's life cycle: purchase, use, and disposition. The following practices will be used during these phases to benefit the environment:

- Purchase electronic equipment that is energy efficient and constructed of less hazardous materials.
- Operate, maintain, and reuse electronic equipment in a manner that maximizes energy efficiency and product life.
- Donate, sell, or recycle electronic equipment at the end of its useful life.

The program strives to achieve the following electronic stewardship goals specified in EO 13423 and DOE Order 450.1:

- Purchase electronic products such that 95 percent meet Electronic Product Environmental Assessment Tool (EPEAT) (Green Electronics Council 2006) "silver" or "gold" standards.
- Enable Energy Star features on 100 percent of computers and monitors.

- Extend the useful life of electronic equipment to 4 or more years.
- Reuse, donate, sell, or recycle 100 percent of electronic equipment that has reached the end of its useful life for DOE-LM purposes.

DOE-LM and the contractor may choose to participate in the Federal Electronics Challenge (FEC 2008) or implement practices equivalent to those recommended through the FEC if such actions would benefit the Electronic Stewardship Program beyond what can be achieved by striving toward the electronic stewardship goals outlined in EO 13423 and DOE Order 450.1.

8.3 Responsibilities

DOE-LM and contractor senior management are responsible for endorsing and reinforcing the importance of the Electronic Stewardship Program, reviewing and approving program requirements and goals, providing budget and labor resources to implement the program, mandating that the workforce adhere to program requirements, and reviewing program performance.

Project managers are responsible for integrating Electronic Stewardship Program requirements and goals into project and site planning and other activities, as necessary. They must ensure that supervised staff are adequately trained and adhere to program requirements.

The Electronic Stewardship Program team is responsible for identifying program requirements; developing and recommending program goals to the EMS Core Team or senior management; developing and facilitating the implementation of program training, procedures, and metrics; advocating employee awareness of the program's objectives, requirements, and goals; and reporting program performance to the EMS Core Team or senior management.

The EMS Core Team or the program team is responsible for proposing site-specific and programmatic goals that are developed in accordance with the EMS Description, aligned with applicable orders and guidance, and approved by DOE-LM and contractor senior management.

All DOE-LM and contractor employees are responsible for being aware of and adhering to program requirements, maintaining program-required training, and implementing program metrics as required by the responsibilities associated with their jobs.

8.4 Procedure

As stated previously, electronic stewardship occurs throughout the three phases of electronic equipment's life cycle: purchase, use, and disposition. Sections 8.4.1 through 8.4.3 discuss the actions that are necessary to implement electronic stewardship during each phase.

8.4.1 Purchasing Electronic Equipment

Electronic equipment will be purchased as follows:

- **Computer equipment (desktop computers, laptop computers, and monitors):**
EO 13423 and DOE Order 450.1 require that newly purchased computer equipment meet

EPEAT standards. Purchasers will use EPEAT to purchase computer equipment that is rated “silver” or “gold.”

- **Office imaging equipment (e.g., photocopiers, printers, and fax machines) and other electronic equipment:** EPEAT is currently designed to assist with only the purchase of computer equipment. Other environmental standards or assessment criteria, such as EcoLogo® (TerraChoice Environmental Marketing Inc. 2007) or Energy Star, will be used to assist with purchasing office imaging equipment and other electronic equipment that has favorable environmental attributes. Criteria other than EcoLogo or Energy Star will be used as recommended by federal resources, such as the EPA or the Office of the Federal Environmental Executive, and DOE guidance. Further direction for using other environmental standards or assessment criteria to purchase electronic equipment will be made available to the workforce as it becomes available and pertinent.

For the purposes of electronic stewardship, purchasing electronic equipment includes both purchasing and leasing. Lease agreements for electronic equipment will include contract language concerning the requirements for environmentally preferable equipment, such as EPEAT-registered computer equipment or EcoLogo copiers and printers.

8.4.2 Using Electronic Equipment

The following practices will be implemented during the use of electronic equipment so that energy efficiency and product life are maximized:

- **Energy Star:** Energy Star features will be activated on all computers, monitors, and other electronic equipment that has such capabilities. Equipment users will use equipment manuals or be instructed on how to properly activate these features; otherwise, Information Technology personnel will perform this task.
- **Hardware and software upgrades:** Hardware and software upgrades will be implemented, as applicable and feasible, to extend product life.
- **Maintenance:** Electronic equipment will be routinely maintained in accordance with manufacturer recommendations.
- **Reduced use:** Electronic equipment will be used as little as work loads allow.
- **Reuse:** Electronic equipment will be reused in accordance with GSA guidelines and requirements, which can be found at the FEC website (FEC 2008) (http://www.federalelectronicchallenge.net/resources/docs/gsa_eolfact.pdf).

The FEC website (FEC 2008) may also recommend other actions that maximize energy efficiency and extend product life.

8.4.3 Disposition of Used Electronic Equipment

Once electronic equipment has reached the end of its useful life for DOE-LM purposes, it will be considered for donating, selling, or recycling as follows:

- **Donating or selling:** Electronic equipment will be donated or sold in accordance with GSA guidelines and requirements, which are noted at the FEC website (http://www.federalelectronicchallenge.net/resources/docs/gsa_eolfact.pdf), and

applicable DOE policies and guidance regarding the proper management of computer hard drives.

- **Recycling:** Because it may contain constituents that are harmful to the environment (such as toxic metals), electronic equipment will not be disposed of as waste. End-of-life electronic equipment that cannot be reused, donated, or sold will be recycled; reputable, competent recycling services, as recommended in the *Instructions for Implementing Executive Order 13423* (CEQ 2007) and DOE Order 450.1, will be used. DOE-LM's procedure for recycling electronic equipment is located in the *Environmental Protection Manual*.

Data regarding the purchase, length of service, and recycling of electronic equipment will be tracked and evaluated to assess performance against the relevant requirements and goals specified in EO 13423, DOE Order 450.1, and other program goals as applicable. Tracking such data is discussed more fully in Section 8.5, "Program Metrics."

8.5 Program Metrics

The following electronic stewardship data will be tracked so that performance toward Electronic Stewardship Program requirements and goals can be measured:

- Purchases of computer equipment, including computer equipment that EPEAT has rated "silver" or "gold."

Purchases of computer equipment that EPEAT has rated "silver" or "gold" will be compared to purchases of all computer equipment to determine whether the following EO 13423 goal has been achieved: 95 percent of purchased computer equipment must meet EPEAT "silver" or "gold" standards.

- Purchases of non-computer electronic equipment (such as printers, copiers, and appliances), including equipment that is compliant with EcoLogo, Energy Star, or other recognized and approved environmental standards.

Purchases of non-computer electronic equipment that is compliant with EcoLogo, Energy Star, or other environmental standards will be compared to purchases of all non-computer electronic equipment to determine what percentage of such equipment has favorable environmental attributes.

Designated employees will maintain an inventory of the type of electronic equipment purchased and the equipment's environmental rating (such as EPEAT rating), as applicable, using approved inventory and tracking systems. An example form for tracking data regarding the purchase of electronic equipment is provided in Appendix 8B to this program plan.

In addition to using inventory and tracking systems or data-tracking forms, electronic equipment purchases will be tracked using the system established in the Environmentally Preferable Purchasing Program (see Chapter 4).

- The service life of electronic equipment (especially computer equipment).

The length of time electronic equipment has been in service will be tracked to determine whether the following EO 13423 goal has been achieved: extend the useful life of electronic equipment to 4 or more years.

Designated employees will maintain an inventory of electronic equipment and the length of time the equipment has been in service, using approved inventory and tracking systems.

- The type and quantity of used electronic equipment that is reused, donated, sold, or recycled.

Used electronic equipment that is no longer useful for DOE-LM purposes will be tracked to determine whether it is reused, donated, sold, or recycled and whether the following EO 13423 goal has been achieved: reuse, donate, sell, or recycle 100 percent of electronic equipment that has reached the end of its useful life.

The type and quantity of electronic equipment that is recycled will be obtained from recycling vendors when they recycle DOE-LM electronic equipment.

Designated employees will maintain an inventory of the type and quantity of electronic equipment that is reused, donated, sold, or recycled using approved inventory and tracking systems. An example form for tracking the reuse, donation, sale, or recycling of electronic equipment is provided in Appendix 8A to this program plan.

8.6 Reporting Requirements

The Electronic Stewardship Program team provides quarterly reports to DOE-LM and contractor management that describe performance toward electronic stewardship requirements and goals and discuss other program activities as necessary. In addition, program performance data will be provided for other performance-related reports, such as the Quarterly Performance Assurance Report, as necessary.

Data regarding the recycling of electronic equipment is compiled for inclusion in DOE's *Annual Report on Waste Generation and Pollution Prevention Progress* (DOE undated).

8.7 Training

All employees receive general awareness training about the Electronic Stewardship Program—including the program's objectives, goals, and implementation—as part of required annual EMS training.

As needed, employees responsible for purchasing electronic equipment, maintaining electronic equipment, the disposition of electronic equipment (i.e., by reusing, donating, selling, or recycling it), and tracking program metrics receive more comprehensive, job-specific training concerning the Electronic Stewardship Program's requirements and goals. More comprehensive training may cover such topics as using EPEAT; operating and maintaining electronic equipment so that improved energy efficiency is attained; properly reusing, donating, or selling obsolete electronic equipment in accordance with applicable regulations and recommendations; or recycling procedures.

Electronic Stewardship Program training courses are developed in consultation with the program team, affected organizations (e.g., Procurement, Information Technology, EC), and contractor training staff.

8.8 Records

Electronic Stewardship Program records are maintained in pertinent program and EMS record files. Such records are managed in accordance with the requirements of the *Records Management Manual*.

The following records are maintained:

- Approved goals
- Audit findings and associated corrective actions
- Program metrics data
- Quarterly and annual program performance reports

Appendix 8A

Example Forms for Program Metrics

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Electronic Stewardship Program Metrics Purchases of Electronic Equipment

Computer Equipment

Date of Purchase/Site Purchased For	Item Purchased ¹	Has EPEAT ² Rating: Yes or No ³	EPEAT Rating ⁴	Comments

1. Choose one: desktop, laptop, monitor, other; if other, describe in "Comments."
2. Electronic Product Environmental Assessment Tool
3. If not EPEAT rated, explain in "Comments" why item was purchased.
4. Choose one: "bronze," "silver," "gold"; if item is not rated "silver" or "gold," explain in "Comments" why it was purchased.

Non-Computer Electronic Equipment

Date of Purchase/Site Purchased For	Item Purchased ¹	Has an Approved Certification, Qualification, or Rating Indicating the Presence of Favorable Environmental Attributes: Yes or No ²	Environmental Certification, Qualification, or Rating ³	Comments

1. Choose one: computer peripheral (state whether keyboard, scanner, mouse, speaker, or other), copier, printer, fax machine, all-in-one office machine, television, cell phone, battery charger, other; if other, describe in "Comments."
2. If item does not have an environmental certification, qualification, or rating, explain in "Comments" why item was purchased.
3. Choose one: Energy Star, EcoLogo, other; if other, describe in "Comments," including what it is and who sponsors it.

Example form number EMS ESP-001

Electronic Stewardship Program Metrics Disposition of Electronic Equipment

Electronic Equipment Disposition Data

Date of Disposition/Site of Origin	Item Dispositioned ¹	Type of Disposition ²	Reused By ³	Transferred To ⁴	Donated To ⁵	Comments

Electronic equipment must be reused, donated, or sold in accordance with General Services Administration guidelines and requirements, which are summarized at http://www.federalelectronicchallenge.net/resources/docs/gsa_eolfact.pdf.

1. Choose one: computer/desktop, computer/laptop, computer monitor, computer peripheral (state whether keyboard, scanner, mouse, speaker, or other), copier, printer, fax machine, all-in-one office machine, television, cell phone, battery charger, other; if other, describe in "Comments."
2. Choose one: reused, donated, sold, recycled; if recycled, provide pertinent recycling data in "Electronic Equipment Recycling Data" form.
3. Name DOE-LM recipient or Computers for Learning recipient that reused electronic equipment.
4. Name other federal agency that electronic equipment was transferred to.
5. Name party that electronic equipment was donated to.

Electronic Equipment Recycling Data

Date of Disposition/Site of Origin	Recycler	Recycled Equipment Type ¹ (Provide number of Units of Each Type, if Available)	Recycled Equipment Total Weight (lbs)	Equipment Disposed of Instead of Recycled: Yes or No ²	Type of Equipment Disposed Of ¹	Total Weight of Equipment Disposed Of (lbs)	Comments

Electronic equipment must be recycled in accordance with General Services Administration guidelines and requirements, which are summarized at http://www.federalelectronicchallenge.net/resources/docs/gsa_eolfact.pdf.

1. Choose any: computer/desktop, computer/laptop, computer monitor, computer peripheral (state whether keyboard, scanner, mouse, speaker, or other), copier, printer, fax machine, all-in-one office machine, television, cell phone, battery charger, other; if other, describe in "Comments."
2. If electronic equipment was disposed of instead of recycled, explain why in "Comments."

Example form number EMS ESP-002

9.0 Land Stewardship—EMS Program #9

The DOE-LM and contractor Land Stewardship Program advocates improving ecosystem health on DOE-LM properties as approved by DOE-LM and in accordance with DOE Order 450.1, DOE Policy 430.1, *Land and Facility Use Planning*, and federal regulations, such as the Endangered Species Act (16 U.S.C. 1531 et seq.) and the Federal Noxious Weed Act (7 U.S.C. 2801 et seq.). The program provides a process to (1) systematically evaluate and assess existing ecological site surface conditions and trends; (2) identify and propose improvements that would be beneficial on a landscape ecosystem scale; and (3) implement improvements with consideration of adjacent land uses, owners, and political entities. The program defines success on the basis of measurable parameters.

9.1 Purpose

The purpose of this program plan is to define how the contractor implements the Land Stewardship Program. The plan incorporates the Integrated Safety Management System concept of promoting continuous improvement through the “Plan-Do-Check-Act” approach and encompasses applicable *Quality Assurance Manual* and *Health and Safety Manual* components and requirements by reference.

9.1.1 Need for Program

DOE Policy 430.1 states that it is DOE’s policy “to manage all of its land and facilities as valuable national resources” and also states that DOE’s stewardship “will be based on the principles of ecosystem management and sustainable development.” DOE-LM long-term strategies for remediated LM sites are protective of buried contaminated materials; however, erosion and invasive species are a cause for concern on many sites. Ecosystems that were originally present prior to various human extractive activities (e.g., mining/milling) were lost during the prescribed uses and remedial actions.

The geomorphologic processes active at remediated DOE-LM sites shape the form and function of the evolving landscape, which in turn influences the success of introduced plants and associated wildlife. Site reclamation typically includes grading a site for positive drainage, constructing drainage channels to ensure that a disposal cell area is not flooded or eroded, and revegetating the site. However, these efforts do not necessarily result in complex or sustaining ecosystems that restore an area to a former (or similar) ecosystem that is adapted to the surrounding climate, soils, elevation, and geomorphology. The result often includes a reduced diversity of vegetation and wildlife and the additional problem of alien species moving into an area due to the absence of predator–prey relationships, the artificial nature of the introduced ecosystem, or the “island effect,” whereby an introduced landscape facilitates dysfunctional relationships. In addition, the opportunity to provide productive habitat for species that were formerly present but that can thrive only within specific ecosystems is lost.

Areas seeded with native vegetation species may prevent or minimize erosion but they may not always result in intact and productive communities because of difficulties related to plant establishment at remote areas, influences from surrounding areas, human activities, or even problems with seed purity and methods used in the seeding or replanting program. Seed may be

selected for durability and ground cover rather than ecosystem value, which will contribute to nonproductive ecosystems.

9.2 Scope

The Land Stewardship Program improves DOE-LM's stewardship of its properties by enhancing ecosystems present on selected long-term-maintenance properties, which results in more cost-effective and efficient maintenance of sites under long-term surveillance and maintenance plans. Sustainable ecosystems include balanced and healthy vegetation and wildlife communities better able to withstand environmental insults. The implementation of this program results in reduced site erosion, fewer invasive plant species, reduced site maintenance, and enhanced biodiversity.

The primary goal of this program is to improve site conditions on a landscape-ecosystem level that is consistent with historical ecosystems in the region or reference areas. DOE has publicly stated that it is a steward of the land and that it will work to preserve the environment for future generations. This implies responsibilities for replacing or improving ecosystems that have been lost over time due to various federal programs that resulted in cleanup actions and changed the integrity of the land through remediation activities. An important part of this goal is the achievement of more efficient and cost-effective long-term management of DOE-LM sites. Improved ecosystems are expected to result in fewer long-term maintenance and management costs through the reduction of erosion issues, the reduction of invasive weeds, and the achievement of ecologically sustainable site conditions.

The desired program outcome includes a more complex and balanced ecological community at selected DOE-LM sites that can sustain a higher level of biodiversity, is attractive to targeted wildlife communities, contains species capable of outcompeting undesirable plants and animals, and reduces soil erosion (where soil erosion is an issue). Because many of the DOE-LM sites are remote, improved ecosystems provide habitat for migratory birds and for listed or valuable species that formerly inhabited the area or that need sanctuary.

9.2.1 Regulatory Relations

DOE has publically stated its stewardship obligations and has included them as a part of various orders and in a policy statement. DOE-LM has additional responsibilities under related federal regulations to manage lands in a sustainable manner.

DOE Policy 430.1, Land and Facility Use Planning. This policy was first issued in 1994 by Hazel O'Leary, then Secretary of DOE. The policy states: "It is DOE's policy to manage all of its land and facilities as a valuable resource. Our stewardship will be based on the principles of ecosystem management and sustainable development."

Endangered Species Act of 1973 (16 U.S.C. 1531 et seq., as amended). This law requires the management of federally listed species and their habitat. If habitat is lost in areas that formerly contained federally listed species, the federal land administrator must restore the lost habitat.

Federal Noxious Weed Act of 1974 (7 U.S.C. 2801 et seq., as amended). This act requires responsible stewardship related to the control of alien species. Federally listed noxious weeds

must be controlled under this act. In addition to the federal act, individual state requirements also address weed control.

National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq., as amended). This act promotes efforts to prevent or eliminate damage to the environment and biosphere, with specific language: “and enrich the understanding of the ecological systems and natural resources important to the nation.” It also directs the federal government, under Title I, Section 101 (b), “to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may: ...fulfill the responsibilities of each generation as trustee of the environment of succeeding generations.”

9.2.2 Coordination with Existing Contractor Activities

DOE-LM’s primary concern at sites where long-term surveillance and maintenance (LTS&M) activities have begun is to maintain the integrity of the remedy. The Land Stewardship Program does not duplicate LTS&M objectives. However, Land Stewardship Program objectives to improve or enhance ecological conditions at non-disposal-cell areas enhance the LTS&M efforts. Successful ecological strategies reduce future costs related to controlling and reducing erosion and invasive species.

Invasive weeds are controlled at the DOE-LM disposal sites as required by federal and state law (such as the Federal Noxious Weed Act of 1974 and individual state requirements). Invasive weed control would continue as needed. The Land Stewardship Program is not a weed control program and does not duplicate efforts or objectives related to weed control. Instead, it integrates those control systems into the individual site strategies. Sites selected for ecological improvements are expected to need less invasive-weed management.

9.3 Responsibilities

DOE-LM and contractor senior management are responsible for overseeing the program and approving program elements.

The program manager and site lead for the selected site have overall management responsibilities for implementing the strategy. Changes to budgets or schedules are coordinated through the program manager and site lead.

The team leader is responsible for ensuring compliance with identified monitoring and reporting requirements and preparing program progress reports. The program team is responsible for communicating the program plan and its objectives and for obtaining approval from DOE-LM, senior management, and project management to implement the plan. The team members are also responsible for ensuring that coordination with related DOE-LM programs continues, ensuring that field data are used as productively as possible, and developing and recommending program goal modifications or additions when appropriate.

Qualified staff will carry out the program’s field aspects. The use of interns or students to assist with fieldwork will be considered. As much as practicable, data will be collected and site enhancements will be implemented during required site visits.

9.4 Procedures

Sites are selected for ecosystem enhancement on the basis of results of a selective screening program, which is defined below. Existing data and site knowledge are used to initially screen all selected sites. Based on the results of the initial screening, sites are selected for a more detailed, or secondary level of screening. The results of the secondary screening are used to prioritize sites for active process intervention. The reseeding or planting of species that would improve site conditions or provide attractive habitat for wildlife may be included in such an intervention. All subsequent sites transferring to DOE-LM are screened after the transfer is complete.

The initial screening of all sites is completed or coordinated by the program team leader. Secondary screenings are conducted by the Land Stewardship team with input, as appropriate, by the individual site leads.

9.4.1 Initial Screening

Initial screening is applied to all current DOE-LM sites and to future sites as they transition to DOE-LM. A simple “yes”-or-“no” answer format quickly eliminates sites that are not suitable for further consideration. Appendix 9A of this chapter includes a questionnaire that will be used for initial screening.

9.4.2 Secondary Screening

Sites that are considered suitable for more evaluation are screened on a more detailed level and are scored according to “yes,” “true,” or “no” responses. The total site score is used to assist in prioritizing sites selected for ecosystem enhancements. The form used to screen sites is included in Appendix 9A of this chapter. Secondary screening includes evaluating the level of erosion, the presence of invasive species (wildlife and vegetation), the wildlife habitat or potential habitat, use of surrounding land, site conditions, and the level of interest in site improvements.

9.4.3 Prioritize Sites for Further Evaluation

Sites are prioritized according to the results of the secondary screening and also with consideration of specific site knowledge of intangible factors or other information that may influence proposed project success.

9.4.4 Ecosystem Enhancement Strategy

Ecosystem enhancement strategies will be developed for selected sites. These strategies will incorporate the sites’ attributes and use current programs, collected information, and best management practices. Other strategies, which include incrementally staged site improvements, will be developed as alternatives to the primary strategy.

A Net Environmental Benefit Analysis (NEBA) or a similar analysis will be applied to the proposed strategies. The NEBA compares the current cost of maintaining the site to the costs and benefits associated with the site ecosystem enhancements and future costs related to associated activities, such as monitoring. This process assists in identifying the most appropriate and cost-effective scenario. Not only is the process valuable for facilitating the comparison of alternatives to the current approach, but it also is useful for assigning economic values to

elements considered intangible. For more information see *Planning and Promoting Ecological Land Reuse of Remediated Sites* (ITRC 2006).

Once the above steps are completed, a proposal that identifies the existing site condition, proposed strategies to improve the landscape ecosystem, and the results of the NEBA are provided to DOE-LM to assist in decision making.

9.4.5 Success Criteria

Success criteria are used to assess how well the strategy is working. Criteria may include improved biodiversity, improved soil integrity and water retention, increased wildlife diversity and use, and reduced erosion. Each site plan includes specific and measurable criteria that assist in analyzing trends and that monitor the success of the proposed remedy.

9.4.6 Monitoring

A monitoring plan is developed for each selected strategy. The monitoring plan includes, at a minimum, the type of data to be collected, the frequency of monitoring and data collection, the method for data collection (e.g., satellite imagery) other potential uses for site-specific data collected, and evaluation criteria for measuring overall site success. The monitoring of the program is assigned to the appropriate site personnel and is incorporated into annual site visits.

If monitoring indicates that the selected strategy is not performing as expected, adaptive management, which may include researching a new strategy or modifying the selected strategy, is conducted. Monitoring continues until the strategy is considered self-sustaining. At that point, information about the project's success is provided to DOE-LM so that details of the success may be distributed to the appropriate media outlets. Projects that succeed in improving the environment reflect well on DOE-LM's commitment to land stewardship.

9.4.7 Process Summary

The following process flow diagram (Figure 9-1) illustrates the general steps required to initiate and complete a site-specific ecosystem enhancement strategy. The circular nature of the steps illustrates the relationship to the Environmental Management System "Plan-Do-Check-Act" process.

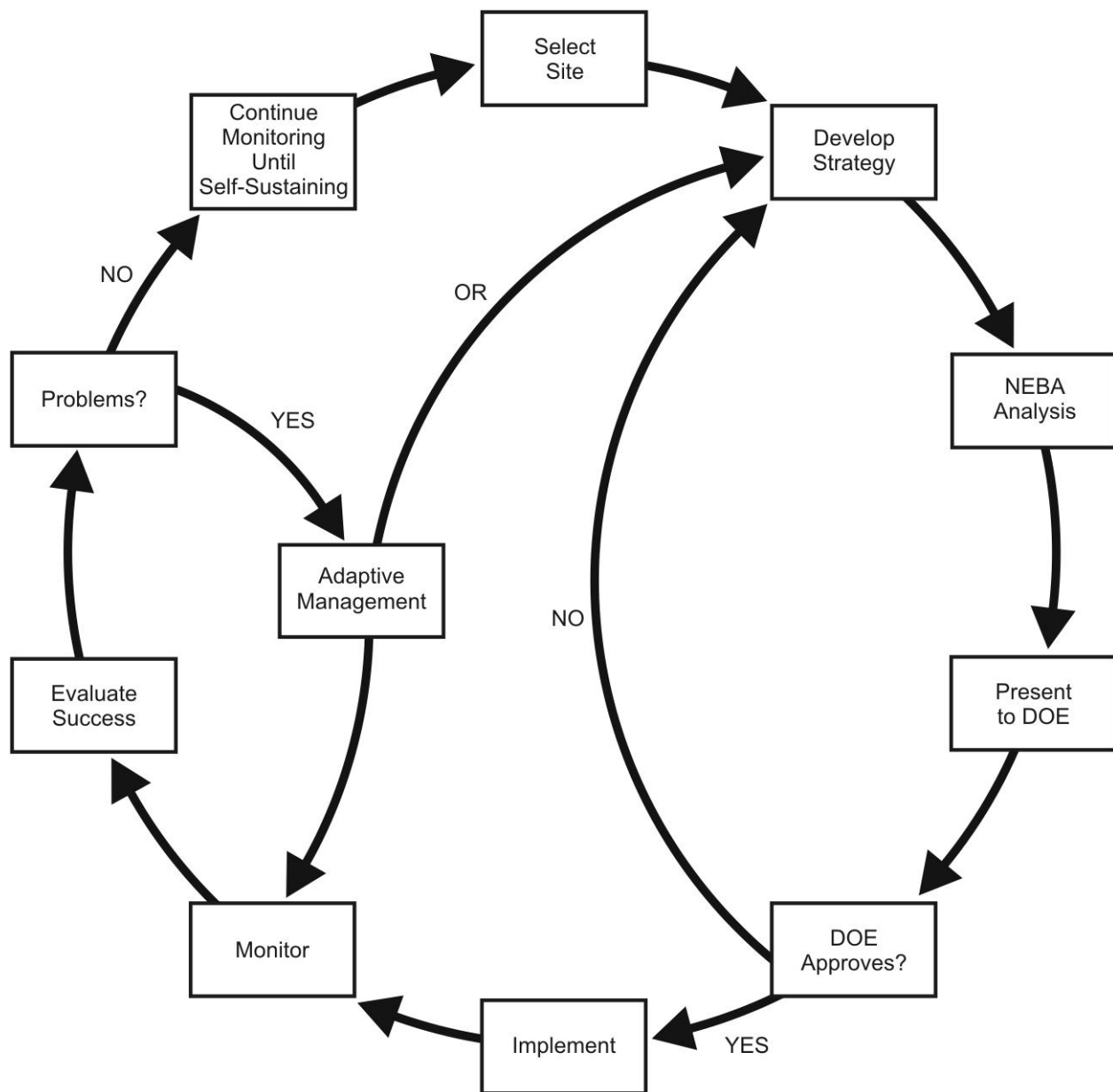


Figure 9-1. Process Flow Diagram Illustrating the Individual Steps and Decisions Needed to Develop and Implement an Individual Site Ecological Enhancement

9.5 Program Metrics

In addition to the measurable criteria that are developed for each site plan to identify trends and levels of success (see Section 9.4.5), the Land Stewardship Program metrics include the overall acreage improved per year, noted decreases in erosion related to individual plan strategies, increases to or improvements in wildlife habitat, increased biodiversity, and reductions in invasive species, as related to program activities.

9.6 Reporting Requirements

Quarterly and annual reports that summarize the overall progress of this program, as well as site-specific activities, will be provided to DOE-LM. The annual report will discuss any recommended changes to program elements or site-specific plans, based on lessons learned from the preceding year.

9.7 Training

A general awareness of the Land Stewardship Program will be provided as applicable to specific site staff. For example, for selected sites, contractor site leads will need to commit to schedule and budget needs and to appropriating resources. An understanding of the program elements and requirements will make it easier to provide resources as they are needed. Ecological site enhancements will be evaluated, identified, and supervised by experienced scientists who have the necessary expertise. Scientists will include contractor geologists, ecologists, and environmental scientists as appropriate to the approved strategy.

9.8 Records

All records will be managed in accordance with the *Records Management Manual*.

Records that are retained include:

- The first- and second-level screening forms for all sites.
- The types of background information used to identify an ecosystem strategy.
- The results of the NEBA.
- The results of monitoring.
- Management and DOE approvals for site-specific strategies.

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Appendix 9A

Site Evaluation for Ecosystem Enhancements

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Site Evaluation for Ecosystem Enhancements

Initial Screening Form

Name of Site:

Date of Evaluation:

Completed By:

1. Is the site a records-only site, is the site planned for disposition, or is the site privately owned?

If the answer to any part of question 1 is yes, do not consider the site further. If no, continue.

2. Does DOE-LM have jurisdiction and control over the site (i.e., custody and control), or is the site withdrawn from another federal agency?

If the answer to either part of question 2 is yes, proceed to secondary screening. If no, do not consider the site further.

Example form number EMS LSP-001

Site Evaluation for Ecosystem Enhancements

Secondary Screening Form

Site:

Date of Response:

Completed By:

Each yes answer or True statement is assigned a value of 1, and each no answer receives a value of 0.

Category	Description	Y = 1 N = 0	Total Score	Comments
Level of Erosion Present	a. Is erosion a concern?			
	b. Are active gullies present?			
	c. Do active gullies threaten site integrity?			
	d. Could site modifications control all activities causing erosion on site, including activities occurring off site by others?			
	e. Could erosion be controlled by site modifications?			
Invasive Species Present (Wildlife or Vegetative)	a. Are invasive species present to a degree that requires control, or is control required by local, tribal, state, or federal law?			
	b. Do invasive species threaten other site resources (if <u>yes</u> , provide descriptive comment)?			
	c. Invasive species are not being successfully managed.			
	d. Are invasive species present due to the uses of or lack of attention paid to adjacent property?			
Wildlife	a. Are listed species present or known to have been present on the site in the past? ¹			
	b. Does the site contain potential habitat for listed species?			
	c. Do migratory birds use the general area (provide species if known)?			
	d. Enhanced site conditions would provide habitat for migratory birds.			
	e. Would wildlife or domestic animals benefit from improved site conditions?			

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Category	Description	Y = 1 N = 0	Total Score	Comments
Surrounding Land Uses	a. Are administrators of surrounding land willing to cooperate with similar enhancements on their own properties?			
	b. Ecosystem enhancements would be consistent with surrounding land.			
Site Conditions	a. Would the site benefit from ecological enhancements?			
	b. Can the site be improved?			
Interest	a. Are stakeholders or other concerned parties interested in improving site conditions?			
	b. Would adjacent landowners care if the site were improved?			
	c. If non-DOE funding were available for adjacent land improvements that would be consistent with the DOE-LM improvement, would land owners participate?			
	d. Would DOE-LM benefit publicly if the site were improved?			
TOTAL				

Listed species include those that the federal, state, or tribal government has classified as threatened or endangered or are considered candidates for "threatened" or "endangered" status.

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Example form number EMS LSP-002

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10.0 Glossary

Alternative fuel—Fuel that is not petroleum-based, such as ethanol, natural gas, hydrogen, biodiesel, and electricity. Also defined in 10 CFR 490.

Alternative-fuel vehicle—A dedicated-fuel, flexible-fuel, bi-fuel, or dual-fuel vehicle powered by alternative fuel as defined in Section 301 of Energy Policy Act of 1992.

DOE Federal Energy Management Program—A program managed by the DOE Office of Energy Efficiency and Renewable Energy that assists federal agencies in the areas of energy efficiency, water conservation, renewable energy, and utilities management.

DOE-LM support energy baseline—A determination of the amount of energy consumed on a specified periodic basis at identified locations or aggregated locations for which information is available through metering, utility company billing, or calculation based on system design capacity.

EcoLogo—A program used to certify that products meet predetermined “green” standards. In terms of electronic equipment, EcoLogo is a desirable “green” certification for certain imaging equipment (photocopiers, printers, fax machines, etc.). The EcoLogo website’s URL is <http://www.ecologo.org/>.

Ecosystem—A natural unit consisting of plants, animals, and microorganisms that function together and with all of the area’s nonliving physical factors.

Electronic equipment—Electronic equipment refers primarily to computer equipment, such as desktop and laptop computers (including central processing units and monitors). Under certain circumstances, electronic equipment may also refer to computer peripherals (such as keyboards, scanners, mice, and printers), copiers, fax machines, televisions, and other miscellaneous items, such as mobile phones.

Electronic Product Environmental Assessment Tool (EPEAT)—A publicly available Web-based tool that helps users evaluate, compare, and select computer equipment based on desirable environmental attributes such as energy efficiency, recycled material content, and upgradeability. The use of EPEAT is supported in the Federal Acquisition Regulations (FAR) through FAR Case 2006-030. The EPEAT website’s URL is <http://www.epeat.net/>.

Energy efficiency—Measures, practices, or programs that reduce the energy used by specific devices and systems, typically without adversely affecting the services provided. Such savings are generally achieved by substituting more technically advanced equipment or by improving operating procedures (e.g., operations and maintenance procedures) to produce the same level of end-use services (e.g., lighting, heating, motor drive) with less energy input.

Energy efficiency and greenhouse gases feasibility evaluation—Development and documentation of relevant information sufficient to allow informed decisions to be made regarding energy efficiency and greenhouse gas generation.

Energy intensity—Energy consumption per gross square foot of building space, including industrial and laboratory facilities.

Energy Star—A joint EPA and DOE program that recommends energy-efficient products and practices. The Energy Star website's URL is <http://www.energystar.gov/>.

Environmentally Preferable Purchasing—The preferential purchasing of products and services that have a lesser or reduced negative effect on human health and the environment when compared with competing products and services that serve the same purpose.

Environmentally Preferable Products—Products that are biobased, energy efficient, recycled content, or water efficient or that have some other desirable environmental attribute.

Federal Automotive Statistical Tool (FAST)—Tool which is used to submit Standard Form 82, Agency Report of Motor Vehicle Data. This includes fuel consumption and age of vehicle.

Federal Electronics Challenge (FEC)—A partnership program for federal agencies that helps participants purchase, use, and recycle electronic equipment in an environmentally conscientious manner. Many of the FEC's goals align with the electronic stewardship goals in EO 13423. The FEC website's URL is <http://www.federalelectronicchallenge.net/>.

“Green” Building—A building that practices increasing the efficiency with which the building uses resources—energy, water, and materials—while reducing building impacts on human health and the environment through better siting, design, construction, operation, maintenance, and removal—the complete building life cycle.

Greenhouse gases—Carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Hybrid vehicle—A vehicle that uses two or more distinct power sources for propulsion.

Land stewardship—The practice of carefully managing land use to ensure that natural systems are maintained or enhanced for future generations.

Leadership for Environmental and Energy Design (LEED)—LEED is a “green” building rating system developed by the U.S. Green Building Council (USGBC) in 2000. LEED is a tool for buildings of all types and sizes. LEED is a point-based system in which projects earn LEED points for satisfying specific “green” building criteria. LEED certification is available in four progressive levels: Certified, Silver, Gold, and Platinum.

Life-cycle cost—Cost of a product or facility over its entire life; includes acquisition, owning, operating, and disposal costs. Life-cycle costing takes into account initial cost, the cost of money, energy costs, operation and maintenance costs, component replacement costs, salvage value, and other factors that will affect cost over the entire life of the project.

Life-cycle cost effective—The life-cycle costs (the sum of the present values of capital costs, installation costs, operating costs, maintenance costs, and disposal costs over the lifetime of the

project, product, or measure) are estimated to be equal to or less than the base case (i.e., the current or standard practice or product).

Major renovations—Construction activities that result in replacement of the Real Property Record, change of the Building Usage Code, or replacement of multiple building systems that significantly impact building operations and/or extend its useful life with acquisition costs up to \$5 million (total estimated costs).

Material substitution—Replacing one product with another product that is less hazardous or less toxic.

Net Environmental Benefit Analysis (NEBA)—Assignment of economic values to costs and benefits associated with the proposed actions and compared to the existing costs associated with maintaining the site.

New construction—Each new construction or major acquisition with costs greater than \$5 million (total estimated cost).

New renewable energy—Renewable energy generating sources placed in service after January 1, 1999.

Non-petroleum-based fuels—See definition for alternative fuel.

Pollution prevention—Reducing or eliminating the release of pollutants into the environment by means such as source reduction, environmentally preferable purchasing, modified product design, alternate work practices, and the segregation of waste materials from nonwaste.

Pollution prevention opportunity assessment—A systematic method of examining work processes and materials in order to identify opportunities for reducing or eliminating the release of pollutants into the environment and the generation of waste.

Potable water—All water that is obtained from public water systems or from natural freshwater sources such as lakes, streams, and aquifers, where the water is classified or permitted for human consumption.

Recycling/reuse—The repeated utilization of the same material by either treating or processing the material to enable further use (recycling) or extending the life of a material by using it multiple times without treatment or processing (reuse).

Renewable energy—Energy produced by solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), hydrokinetic, geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project.

Renewable energy feasibility evaluation—Development and documentation of relevant information sufficient to allow a management decision on whether to implement a renewable energy generation project or grant a waiver.

Site—Any building, installation, structure, land, fixture, or other property.

Source reduction—The reduction or elimination of the quantity or toxicity of hazardous substances, pollutants, or wastes entering a waste stream or being released into the environment before recycling, treatment, or disposal, thereby reducing the hazards to public health or the environment.

Statutorily required renewable energy consumed—As defined in the EPACT 2005, means not less than 3 percent in fiscal years 2007–2009, not less than 5 percent in fiscal years 2010–2012, and not less than 7.5 percent in fiscal years 2013 and each fiscal year thereafter.

Success Parameters—Criteria that are used to evaluate the outcome and trends of the proposed ecological enhancements.

Sustainable Building—A building that incorporates sustainable design principles to reduce or minimize the negative impact to the environment and reduce the energy, electricity, and water consumed by the building. Sustainable buildings are designed, built, and operated in a way that reduces negative their impact on the natural environment. “Sustainable” building” is synonymous with “green” building.

Sustainable Design—A design that seeks to reduce negative impacts on the environment, reduce consumption of nonrenewable resources, minimize waste, and create healthy, productive work environments, thereby improving building performance.

Transformational Energy Action Management (TEAM) Initiative—A new initiative in which DOE plans to “lead by example” in order to meet or exceed the federal goals of EO 13423.

U.S. Green Building Council (USGBC)—The USGBC is a nonprofit organization whose membership consists of leaders from every sector of the building industry. The USGBC works to promote buildings that are environmentally responsible, profitable, and healthy places to live and work. USGBC has developed the LEED (Leadership in Energy and Environmental Design) Green Building Rating System as a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.

Waste minimization—Reducing the volume, recycling or reusing solid and hazardous materials, such that it is not placed in landfills. Examples of waste minimization include reprocessing scrap metal to use in other products, reprocessing asphalt to resurface roads, recycling paper products, and recycling used oil.

Water-consumption intensity—Potable-water consumption measured in gallons per gross square foot of building space, including office space, industrial and laboratory facilities (provided that the building space uses water), and surrounding land, as applicable to Goal Metrics Program sites. Potable-water used for landscape irrigation is to be reported in the total water use, but the amount of turf or landscape area is not included in gross-square-footage reporting.

Water use—Includes all potable water used for human consumption, building processes, the cooling of power plants or buildings, watering landscape, irrigation, or industrial purposes.

WaterSense—A partnership program sponsored by the EPA to help preserve the nation’s water supply. If a product or program is labeled “WaterSense” it meets established water-efficiency and performance criteria. The label indicates that a product will perform well and help save money. Additionally, WaterSense has partnered with irrigation professionals and water product manufacturers. Information is available at www.epa.gov/watersense.

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